



**'WE  
MUST  
SPREAD  
HOPE'**

AS EARTH DAY 2024—APRIL 22—  
RAISES AWARENESS OF THE  
IMPACT OF PLASTIC ON HUMAN  
AND PLANETARY HEALTH, *PEOPLE*  
CELEBRATES JANE GOODALL  
AND THE CLIMATE WARRIORS  
FOLLOWING IN HER FOOTSTEPS



Not everyone gets a happy-birthday message from Cher on social media or a special performance by Dave Matthews at a private party in San Francisco. But then again not everyone is Dr. Jane Goodall. “People like Jon Stewart are coming to one birthday party,” she says. “I can’t keep up with all these people in all these places.” The legendary ethologist, who broke ground with her trailblazing research on chimpanzees and has dedicated her life to protecting the planet, doesn’t understand all the fuss about her 90th birthday on April 3. “I don’t feel any different from how I was last year at this time,” she says. “So I shall just carry on. I’m busier than ever. I feel that I was put on this planet with a mission.”

Ever since Goodall set foot in Tanzania’s Gombe National Park in 1960 at age 26 to study chimpanzees in the wild, she has made it her life’s work to spread the word about protecting endangered species and their natural habitats. Goodall, whose husband, Derek Bryceson, died in 1980, lives two months each year with her sister Judy Goodall, 86, in their childhood home in Bournemouth, England. She spends the other 300 days traveling to spread her message of hope around the world and raise awareness for the Jane Goodall Institute, the nonprofit she founded in 1977. She focuses her talks on conserving the natural world and fighting the climate crisis. “We do have a window of time, but unless we get together and take action, it will be too late,” she says. In February she announced that her nonprofit had teamed up with the Bezos Earth Fund to protect forests and biodiversity in the Democratic Republic of the Congo and the Republic of the Congo, a region that is key to helping slow climate change. She’ll also spend time speaking at the more than 25 Jane Goodall Institute chapters worldwide that want to commemorate her birthday. “I’ll be celebrating for a whole year,” she says.

The energetic grandmother of two works so tirelessly because “you could hardly say things are well in the world, can you? The climate is completely different.” It rarely snows anymore on England’s south coast, where she grew up. “We have maybe two nights of snow,” she says. “There’s a little bit of frost—a caking and a few flakes of snow.” The antidote, she says, lies in giving hope



### Can't Stop. Won't Stop

Goodall (visiting Tanzania in February) travels 300 days a year telling people to remember that every day they “make an impact, so please choose wisely.”

### Speaking Out

“It’s our children who will suffer if we don’t slow climate change,” says Goodall (in March).

## REPURPOSING PLASTICS

Roots & Shoots volunteers in Diepsloot, South Africa, turn single-use nonrecyclable plastics into “ecobricks” by filling them with garbage and sand so that they can be used to construct buildings like this school built in 2022. “Waste can actually be made into something that won’t harm the environment,” says Goodall.



to the world. “If you lose hope, you become apathetic and do nothing, because what’s the point?” she says. “If we all do nothing, we’re doomed. That’s why I spend a lot of time working with our Roots & Shoots program,” which encourages young people in 70 countries to help humans, animals and the environment. “Roots &

## ‘I FEEL THAT I WAS PUT ON THIS PLANET WITH A MISSION’

—JANE GOODALL

Shoots honestly changes young people,” she says. “Even at the age of about 6, they’re planting organic gardens and trees and taking action.” She wants adults to follow suit: “The cumulative effect makes a big difference.” Not surprisingly, Goodall works hard to avoid using plastics, the theme of this year’s Earth Day. “I try to think about everything I do in relation to ‘Is it going to harm the environment? Was it cruel to animals?’”

She’s also looking toward the legacy she wants to leave behind: inspiring others to care for the planet as she has. “We depend on the natural world for everything,” she says. “It’s like a beautiful tapestry, and all the threads are interconnected. As each species vanishes from this ecosystem, eventually it will collapse. So we must give young people hope.” —K. C. BAKER



**Next-Gen Threads**  
Gomez (left) and Lee (with an example of their protein-based fiber) secured \$4.15 million in funding for their venture.

## THEY MAKE TEXTILE FIBERS FROM PROTEIN, NOT SYNTHETICS

Two New York City entrepreneurs have set out to disrupt the fashion industry by creating an alternative sustainable fiber

When Chui-Lian Lee and Valentina Gomez were classmates at New York City's Fashion Institute of Technology, they became frustrated by the impact the industry has on the environment. Roughly 11 million tons of textile waste end up in landfills each year, and the chemicals and gases that emerge during decomposition pollute the earth.

Lee, 35, and Gomez, 26, learned that they could

use specially engineered proteins to create a fluorescent-color fiber that avoids plastics and dyes and degrades naturally.

In 2020 they launched their biotechnology company Werewool. Now they've begun working with brands to develop clothing out of their fiber, and they hope to introduce products in 2025. "Our goal," says Lee, "is to make the fashion industry compatible with nature."

—LIZZIE HYMAN

CLOCKWISE FROM TOP LEFT: CHRISTIAN JOSEPH; MADHVI/ECOETHICS(2)

## THIS 'NO PLASTIC NINJA' IS CHANGING POLICY

Madhvi Chittoor, 13, is leading a new generation of environmental activists in the fight against plastic pollution

When Madhvi Chittoor was 5 years old, she watched the documentary *Midway: A Plastic Island* about a once pristine Pacific atoll blanketed by plastic trash. Her life was instantly transformed. "I cried that night,"

recalls Madhvi, now 13, "and told my mom, 'I really want to do something about this.'" Since then the eighth grader from Arvada, Colo., has emerged as a one-girl army bringing awareness to the devastating toll of plastic pollution and pushing policymakers to create laws to curb use. "Adults are going along as though it's business as usual," says Madhvi, explaining what drives her. "But

children are going to inherit this planet."

Madhvi—who is known as the No Plastic Ninja (she has a black belt in tae kwon do)—has published a children's book, *Is Plastic My Food?*;

spoken about the environment at the United Nations; and collected thousands of signatures to ban Styrofoam lunch trays in her school district. In January a new state law—Colorado's Plastic Pollution Reduction Act—banning Styrofoam containers and single-use plastic bags that she helped champion went into effect.

"Plastic pollution is literally everywhere," says Madhvi, whose latest fight involves working with state legislators on a bill to ban the use of so-called forever chemicals found in everything from nonstick cookware to artificial turf. "But I'm never going to give up."

—JOHNNY DODD

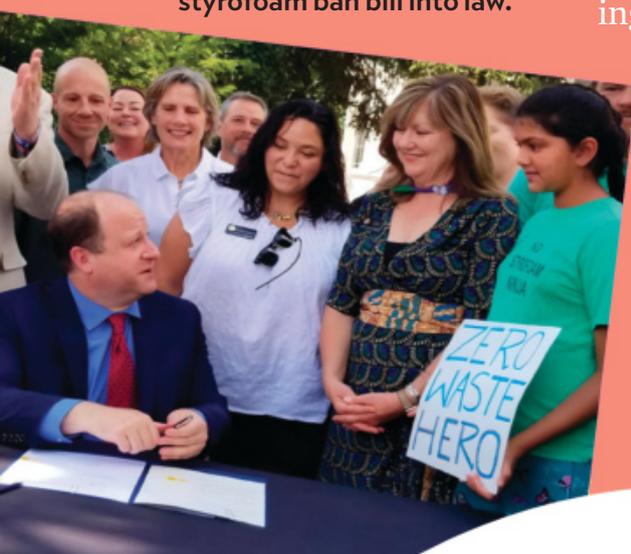
**She Cleans Up Well**

"I will never stop fighting," says Madhvi (at a cleanup of Colorado's South Platte River in 2019).



### Making History

Madhvi (in 2021) watches Colorado governor Jared Polis sign the state's plastic and styrofoam ban bill into law.





## PLASTIC BE GONE!

Some tips from Aidan Charron—Earthday.org’s director of End Plastics Initiatives—on how to begin purging plastics from your home and life.



### Reuse!

Ditch the single-use plastic and opt for stainless steel or glass water bottles and food containers.



### Eco-Friendly Fashion

Pay attention to what your clothes are made of. Avoid synthetic fibers—they’re plastic.



### Audit Your Plastic Use

Find more sustainable alternatives like shampoo bars for daily needs.



### Mission: Clean Water

Scientist Guihua Yu (in his lab in 2023) developed an inexpensive filter that weeds out harmful particles in water, making it safe to drink.

## HE INVENTED A FILTER THAT REMOVES IMPURITIES FROM WATER

Alarmed by contaminants in drinking water, Dr. Guihua Yu strives to bring purifying technology to the masses

Growing up in rural southeast China, Dr. Guihua Yu watched as people in his small mountainous community suffered from a lack of clean water. “It was usually very muddy from the creeks, and it was quite common for kids to drink bacteria,” says Yu, 43, now a professor of materials science and engineering at the University of Texas at Austin. “They got diarrhea and became sick and then had difficulty getting into a hospital to see a doctor.”

Yu’s experience inspired him to develop technology to filter polluted water to make it suitable for consumption—especially in developing countries where access to clean water is limited. “I wanted to find a very

low-cost way to help millions in need,” he says. His solution: solar energy. “By using sunlight to evaporate the water, you can get rid of contaminants,” he says. In the last two years, his team has applied the technology to create a simple, inexpensive filtration system that can also be used to remove plastic nanoparticles from water—a growing concern among researchers. “Marine scientists understand that marine animals exposed to plastic particles in the ocean take years to develop symptoms,” he says. “This is also true for people drinking from plastic bottles. Over time it can hurt the kidneys and liver.”

The filter is already being used to treat contaminated



### A Simple Solution

At a cost of less than \$2, Yu’s invention could be a game changer in developing countries.

water in Uganda, and Yu hopes it will soon be available to households around the world at a cost of less than \$2. Eventually the technology can be scaled up to filter quantities of water large enough to serve communities. “It’s worrisome for parents because plastic is almost everywhere,” says Yu, a married father of three. “That’s really scary, especially for young kids.”

—JOANNE FOWLER

500 nm

## WHAT ARE NANOPLASTICS?

About a thousand times smaller than the width of a human hair, nanoplastics (above) are much tinier than microplastics (left), which are about .5 mm in diameter, roughly equivalent to a grain of rice.

## WHAT YOU NEED TO KNOW ABOUT PLASTIC IN YOUR WATER

In January Phoebe Stapleton (inset), associate professor of pharmacology and toxicology at Rutgers University, coauthored a groundbreaking study that revealed the alarming amount of tiny plastic fragments—known as nanoplastics—found in bottled water. Each liter of water contained an average of 240,000 particles from seven different types of plastics. Nearly 90 percent of these particles were nanoplastics made up of synthetic chemicals with potentially dangerous health effects, such as immune dysfunction and carcinogenicity; the remainder were larger microplastics. **How do these particles get into the water?** Of the three different brands of water we examined, the particles

all came from the bottle and the cap. But with two of the brands, the highest concentrations were in the water before it got into the bottle. We haven't done an analysis to test if it came from the source water or if it came from the filtering and processing.

### What happens when these particles enter the body?

The body has a way to clear microsize particles, but the smaller (nano) particles are able to bypass those protections. For example, within 24 hours of these particles entering the gastrointestinal system, we were able to find them in maternal tissues (in animal test subjects) and in placenta and fetal tissues.

### What's the most troubling aspect of this study?

One concerning question is where exactly in the

body are these particles going, how long do they stay there, and what are they doing while they're there?

Another concern is this idea of accumulation of these particles in healthy human tissues. A study out of Hawaii has shown that tissues sampled [recently] had significantly higher concentrations of plastic particles in them than the tissues from just 10 years ago. So while it might not affect my health today, it may affect my health in 50 years.

**Are you still drinking bottled water?** I'm drinking filtered tap water now [tap water generally contains less plastic particles than bottled water], but I'm still nervous about the filters because they're made out of plastic.

— JOHNNY DODD

## PLASTIC BY THE NUMBERS

500

Number of water bottles, in billions, used each year

×

156

Number of water bottles the average person uses each year

×

50

The percentage of plastic products that are used once and thrown away

TOP, FROM LEFT: EVESTOCKPHOTO/GETTY IMAGES; UNIVERSITY OF TEXAS AT AUSTIN; INSET: AMY GOLDSTEIN PHOTOGRAPHY



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# CARING FOR THE PLANET WE ALL SHARE

Purina's sustainability efforts support preservation of the natural environment pets love and the planet we call home together.

