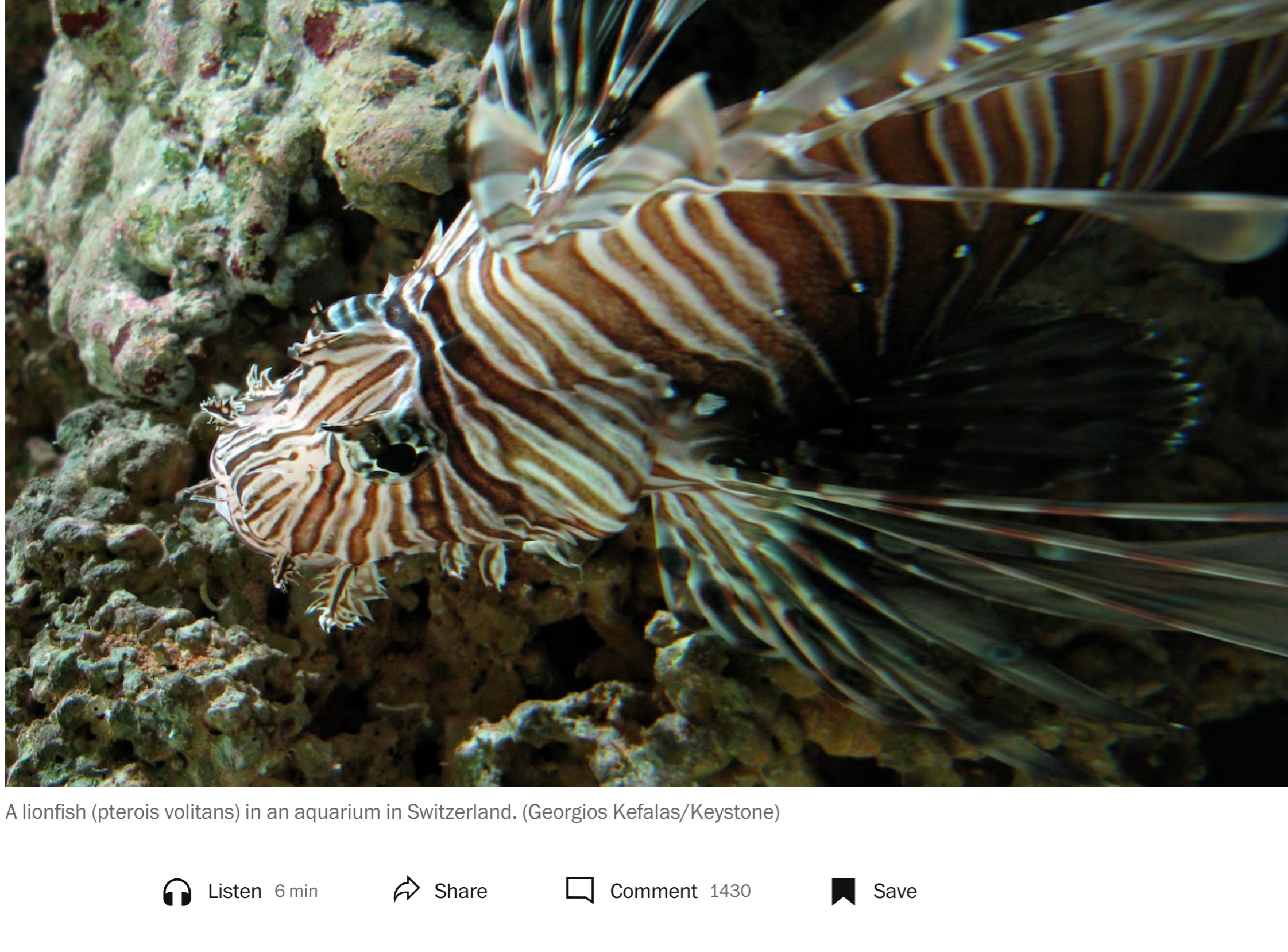


Scientists warn invasive pests are taking a staggering toll on society

The authors of a major new U.N.-backed report say invasive species are costing the world more than \$423 billion a year

By [Dino Grandoni](#)

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A lionfish (pterolis volitans) in an aquarium in Switzerland. (Georgios Kefalas/Keystone)

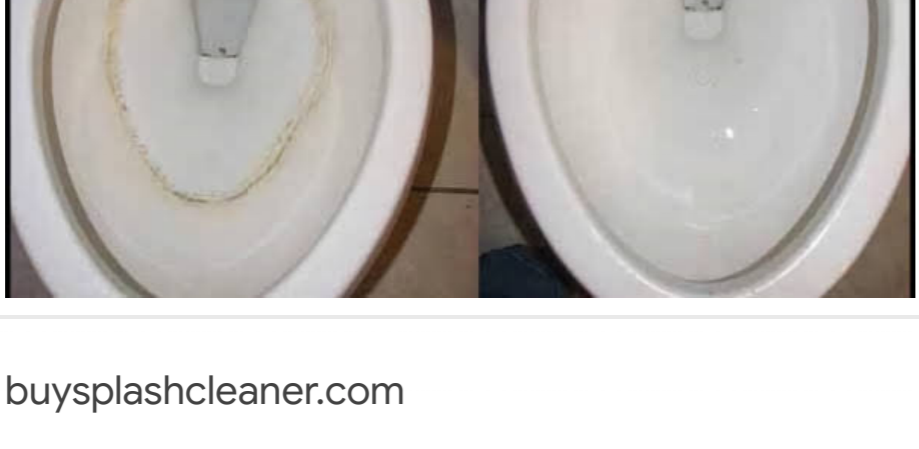
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Invasive pests are wreaking havoc across the planet, destroying crops, disseminating pathogens, depleting fish people rely on for food and driving native plants and animals toward extinction, according to a major report backed by the United Nations.

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The landmark assessment found more than 3,500 harmful invasive species cost society more than \$423 billion a year, a tally only expected to grow as the modern age of global trade and travel continues to supercharge the spread of plants and animals across continents like never before.

By hitching a ride on cargo ships and passenger jets, exotic species are bridging oceans, mountain ranges and other geographic divides otherwise insurmountable without human help. The result is a great scrambling of the planet's flora and fauna, with dire implications for humans and the ecosystems they depend on.



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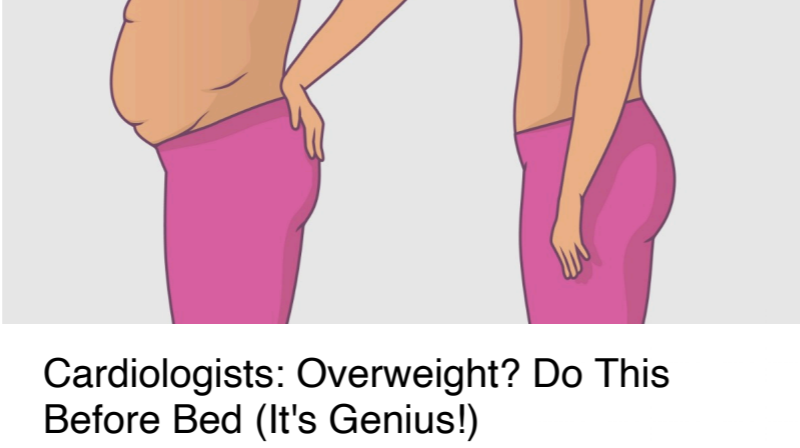
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“One of the things that we stress that really is the tremendous threat this does pose to — and I know this is going to sound grandiose — but to human civilization,” said Peter Stoett, an Ontario Tech University professor who helped lead a group of about seven dozen experts in writing the report. The cost estimate, he added, is “extremely conservative.”

The spread of plants and animals between continents is one of the main causes of Earth's ongoing biodiversity crisis, an extinction event on par with the asteroid that killed the dinosaurs. Invasive species are playing a role in 60 percent of extinctions, according to the report.

As more harmful invasive species take hold and multiply, humanity faces profound risks, too, as pests threaten to eat through croplands and spread mosquito-borne illnesses and other diseases.



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“It's normal that species move,” said Aníbal Pauchard, a professor at the University of Concepción in Chile who with Stoett co-chaired the group behind the report. But what is unprecedented, he added, is today's era of plants and animals leaping the “big barriers” between continents.

“It's not normal that a species crosses the Atlantic,” he said. “Not normal that it goes from Australia to Chile.”

More than four years in the making, the report is written by the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#) (IPBES), a body made up of more than 140 countries that provides policymakers with scientific assessments to help protect Earth's biodiversity and prevent extinctions. A summary of the findings was approved over the weekend in Germany and released Monday, with full chapters slated to be published later this year.

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The body concluded the threat from invasive species is “underappreciated, underestimated and often unacknowledged,” with only about a sixth of the world's nations having laws or regulations on the books addressing invasive plants and animals. With new species introduced at an “unprecedented” rate of 200 a year, the problem is expected to get worse before it gets better.

The most widespread invasive animal, according to the report, is the black rat, which spread by stowing away on ships and scurried its way not only into dense cities but onto far-flung islands as well, where it has decimated ground-nesting seabirds and other animals. The impact of land-dwelling rats on islands is so profound that even nearby [reef fish can feel it](#) after the rodents alter the flow of nutrients into the ocean.

[[Land-dwelling rats are upending life for coral reef fish](#)]

Remote islands are particularly prone to invasion, as they often harbor plants and animals found nowhere else.

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On Guam, for instance, the voracious brown tree snake has already driven several native birds to extinction. On Maui, the destructive power of invasive vegetation was on full display last month after [introduced grasses fueled wildfires](#) that killed more than 100 people.

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Many invasive species have taken hold in aquatic ecosystems, too. In the Caribbean, venomous lionfish are driving down the numbers of native fish. In the Great Lakes, zebra mussels are clogging the intake pipes of drinking water systems and power plants.

But one of the most devastating aquatic invaders is a delicate-looking flower.

Originally from South America, the water hyacinth is a free-floating plant that grows so quickly that it can cover entire ponds and lakes, leaving a matted mess that impedes boat traffic and fishing. In some cases, the plants suck up so much water that they render lakes dry and leave communities without drinking water. The report deemed the water hyacinth, which is popping up everywhere from Africa to Australia, the most widespread invasive plant on Earth.

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Even Antarctica is not spared. The introduction of invasive grasses coupled with rising temperatures puts portions of the southern continent at risk of converting into grasslands.

In addition to invasive species, the other four key drivers of extinction are climate change, habitat destruction, pollution and direct exploitation of species, [with a million plants and animals at risk of vanishing for good](#).

Climate change is poised to make the problem of invasive pests worse by enabling animals such as tropical ants to march north into higher latitudes.

“With climate warming, there will be some species that would not have been able to establish and thrive in some of the regions of the world, but going forward they will be able to establish and thrive,” said Helen Roy, a British ecologist and a third co-chair of the assessment.

Invaders, in turn, can exacerbate climate change. Tree-killing insects such as the [emerald ash borer](#) spreading through North America [make it more difficult](#) for forests to sequester carbon out of the atmosphere.

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“The intersectionality of this report with the U.N.'s climate change goals is profound,” said Leigh Greenwood, who works on forest pests and pathogens for the Nature Conservancy, a global environmental nonprofit.

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In December, nations agreed to try to reduce the spread of harmful invasive species by at least half by 2030 as part of [an international agreement](#) hammered out in Montreal. The best way to deal with them, according to the report, is stopping them from entering in the first place through border monitoring and import control.

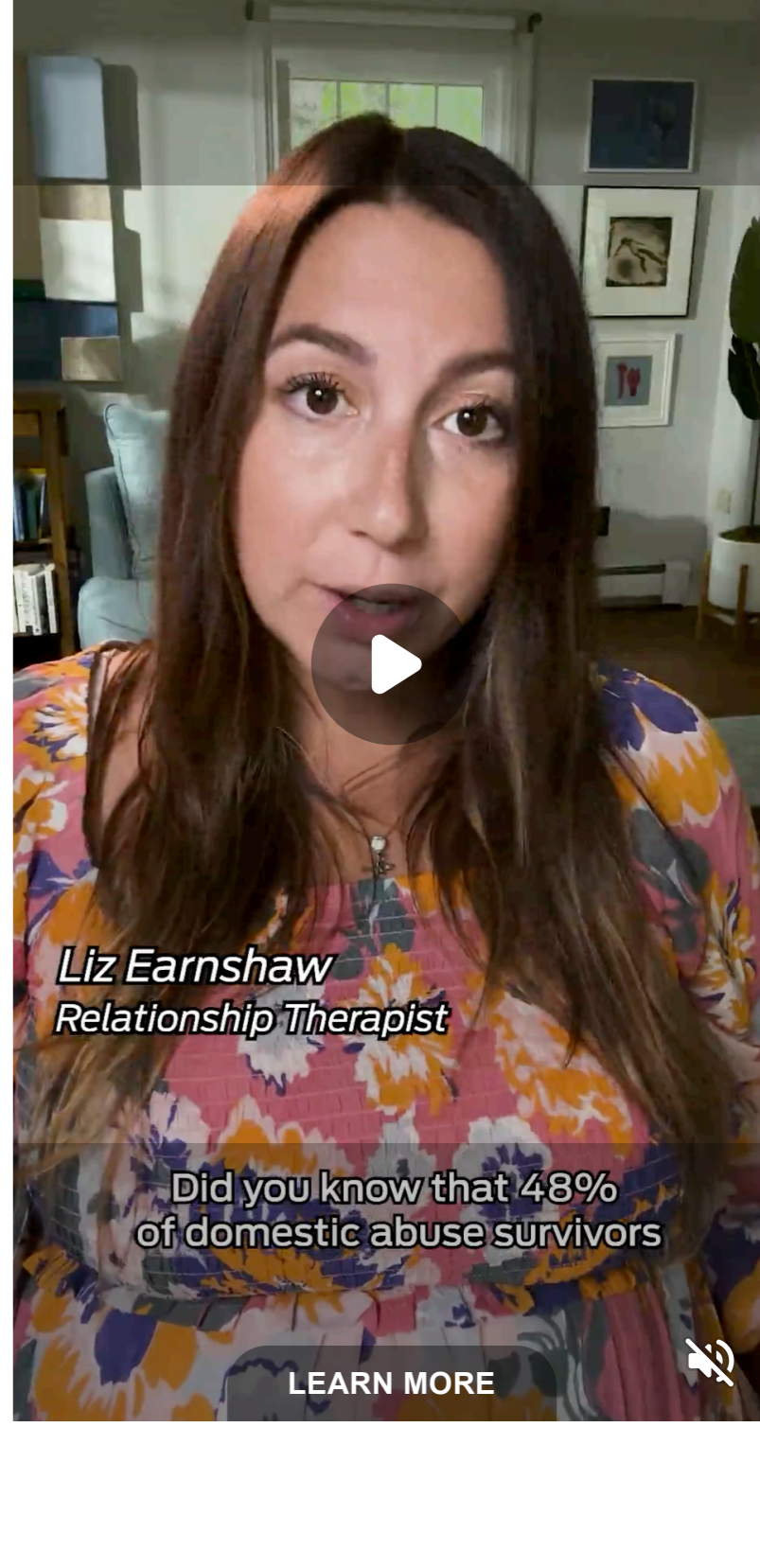
“We keep coming back to: prevention, prevention, prevention,” Stoett said.

Even when an invasive species has taken hold, eradication is possible, especially on islands. Conservationists have exterminated the rodents plaguing the South Atlantic island of South Georgia while others working in the Galapagos have rid some of the islands of destructive goats.

[[A tiny Hawaiian bird was nearing extinction. Then the Maui fires came.](#)]

And emerging technologies offer hope, too, even as they cause controversy. In Hawaii, officials are preparing to release a special strain of bacteria to suppress mosquitoes carrying an avian form of malaria that's [killing songbirds](#). Others are trying to tinker with the genes of mosquitoes and other pests to control their numbers.

“Every challenge that nature faces compounds all the others,” said Monica Medina, a former State Department official for biodiversity who now runs the Wildfire Conservation Society. “Invasive species are adding stress to fragile ecosystems already facing a plethora of other threats.”



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