



# When Confronting a Pandemic, We Must Save Nature to Save Ourselves

By Sahir Doshi and Nicole Gentile April 20, 2020

The COVID-19 pandemic has brutally and tragically exposed the extent to which the health and well-being of every family in America depends on the health and well-being of nature—both here at home and around the world. Nature is connected to human health, from the inherent mechanisms through which ecosystems regulate the emergence of new pathogens to the health benefits of spending time outdoors.<sup>1</sup> But in our destruction of earth’s natural resources, we are losing these free services and reducing our resilience to new diseases.<sup>2</sup>

The current focus should remain on the immediate medical and socioeconomic needs in the United States. However, the COVID-19 outbreak has laid bare the need for a more proactive and integrated approach to fight infectious disease epidemics, which are becoming more common in many regions around the world.<sup>3</sup> Specifically, alongside investments in epidemiological research and healthcare, we need to address the problem at its root: the destruction of nature.

COVID-19 is a zoonose, or an infectious disease that spreads to humans from nonhuman animals. Almost two-thirds of all emerging diseases are zoonoses, and 71 percent of those originated in wildlife.<sup>4</sup> These include some of the deadliest recent pandemics, including HIV-AIDS, Ebola, severe acute respiratory syndrome (SARS), and, now, COVID-19.

It is not a coincidence that the rise in wildlife-borne diseases has occurred alongside increasing human encroachment on nature and a rapidly changing climate. Three-quarters of the earth’s land area is now heavily altered by human use,<sup>5</sup> and species extinctions is occurring at almost 1,000 times the natural rate.<sup>6</sup> In the U.S. alone, we lose a football field worth of open space every 30 seconds,<sup>7</sup> and 1 in 5 native species is at risk of extinction.<sup>8</sup> Habitat loss and overexploitation of wildlife—compounded by climate change—are driving factors in the disease boom, and they endanger human health in three ways:

1. **Expanding transmission pathways from wildlife to humans.** Habitat destruction and wildlife consumption, especially the large-scale legal and illegal wildlife trades, increase the rate of interaction between humans and disease-carrying animals, exposing our most vulnerable frontline communities—and our entire species—to new pathogens.

2. **Disrupting ecosystems and biodiversity.** Habitat fragmentation and changes in the populations of different species can throw ecosystems off balance—eroding the built-in checks and balances that reduce and regulate the risk of disease—and cost future generations undiscovered medical breakthroughs in vanishing biodiversity.
3. **Reducing communities' ability to cope.** Loss of natural areas translates into fewer spaces for people to enjoy the great outdoors. Many studies have shown the direct connection between time spent in nature and healthy populations—both mentally and physically. In the face of global health crises, access to nearby parks and open space is critical for all communities.

To save ourselves, we must save nature. While the solutions may seem global in scope, there are steps that the U.S. can take now to stem the tide. Halting the destruction of natural areas, stepping up efforts to end wildlife trafficking, and creating more parks and open space near communities are three actions that policymakers can take to address the nature crisis and, in doing so, protect the well-being and health of our communities.

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### Reduce dangerous human-wildlife interactions by fighting the illegal wildlife and timber trade

Some of the deadliest new diseases—including COVID-19, Ebola, SARS, and HIV—have arisen when the natural barriers between human and animal populations are breached. Dangerous close contact and prolonged exposure occurs when people encroach on wildlife habitat or bring wild animals into human communities. Both are routine in the global trade and overconsumption of wildlife, which is at the root of all four diseases. U.S. demand for natural resources and wildlife products is a driving force behind the problem and the resulting pandemics. As the world's second largest buyer of illegal wildlife products after China,<sup>9</sup> the United States has an outsized role to play in ending wildlife trafficking, halting unsustainable deforestation and supporting international conservation efforts.

Globally, the legal and illegal wildlife trades are massive businesses that expose humans to a range of species and potential diseases. Trade workers who source, process, and transport live animals and carcasses amidst the industry's often unsanitary conditions are at high risk of contracting a zoonotic disease.<sup>10</sup> These frontline workers are often located in rural communities and do not have access to adequate health care facilities. As a result, these workers often do not receive the treatment they need to diagnose and combat an infection. For public health officials, this renders early detection and containment of emerging diseases particularly challenging. In cases of illegal trafficking of protected species, early detection of an emerging disease is even more difficult, as workers may be disincentivized from reporting suspected illnesses due to fear of retribution from the law.

Illegal trafficking has also created conditions for increased human contact with rare and endangered species, such as chimpanzees and pangolins. Chimpanzee and other nonhuman primate viruses are especially dangerous to humans due to our genetic similarities. Pangolins—the most heavily poached and trafficked mammals in the world<sup>11</sup>—are thought to be intermediaries through which COVID-19 could have passed from a reservoir in bats to humans.<sup>12</sup> In the illegal trade, species that would rarely interact in nature are held and transported together, often in overcrowded markets. Pathogens easily pass between different species of animals—and workers.

The U.S. might not have physical wildlife markets of the same scale, but it has enormous power and potential to influence the industry as a top destination country for both legally and illegally sourced wildlife goods. Between 2005 and 2014, the U.S. Fish and Wildlife Service's Office of Law Enforcement detected nearly 50,000 illegal wildlife shipments at U.S. ports of entry containing more than 660,000 individual animals, 5.5 million body parts, and almost 5 million pounds of meat.<sup>13</sup>

These channels can provide pathogens an entry into the country. A 2012 study found evidence of potentially harmful viruses in chimpanzee and other nonhuman primate parts confiscated at U.S. airports.<sup>14</sup> As a major destination for reptiles,<sup>15</sup> the U.S. remains at constant risk of salmonella outbreaks.<sup>16</sup> Even bats—the likeliest natural reservoir for COVID-19—are legally exported in the thousands from Asia to the United States with inadequate documentation to determine the risk involved in taking them from the wild.<sup>17</sup>

Alongside its demand for dangerous animal species, the U.S. is a major buyer of illegal timber.<sup>18</sup> An estimated 15 percent to 30 percent of globally traded timber comes from illegal logging operations that have opened old-growth tropical forests to human use.<sup>19</sup> This forest destruction exposes logging workers and frontline communities to new pathogens when the deforestation displaces species. Overfishing has a similar indirect effect, causing communities to rely more heavily on higher-risk wildlife as a source of protein in the absence of alternatives.<sup>20</sup>

Minimizing the U.S. role in encouraging illegal and dangerous extractive activities would reduce the risk of new pandemics emerging abroad while, at the same time, conserving biodiversity and benefiting the health and human rights of vulnerable communities. The United States can achieve this goal by strengthening and enforcing existing legislation such as the Lacey Act, which prohibits trade in wildlife goods acquired in violation of federal, tribal, and foreign law. Amended in 2008 to include timber, the act is a powerful tool to reduce the United States' hand in illegal logging<sup>21</sup> and can be used to leverage our status as a major market to improve standards worldwide.<sup>22</sup>

Additionally, U.S. leadership through example, robust funding, and programmatic support can buttress the global effort to fight illegal wildlife trafficking which—like the pathogens it spreads—transcends national borders. Under authorizing statutes like the Endangered Species Act and the Multinational Species Conservation Acts, the United States can reduce demand for at-risk plant and animal species by supporting community development programs that decrease economic reliance on wildlife products.<sup>23</sup> Although the Trump administration has attempted to cut funding to the Fish and Wildlife Service’s domestic and international efforts,<sup>24</sup> now is the time to fully fund, enforce, and expand these statutes—and protect them from regulatory rollback and legislative attack—as an investment in global health.

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### Protect nature’s benefits by conserving habitat and biodiversity

Human activities are destroying, degrading, and fragmenting natural areas at an unprecedented rate. Habitat destruction and biodiversity loss are contributing to the rise in new diseases by undercutting the natural ability of ecosystems to reduce and regulate the risk of a pathogen spreading among wildlife.<sup>25</sup> Scientists have already established land-use change as the primary driving cause of one-third of recent zoonotic outbreaks.<sup>26</sup> By throwing ecosystems off balance, human activities have turned natural areas from our first line of defense into hot spots for disease emergence and robbed communities of vital services for human health. Reversing this trend remains our best shot at preventing the next pandemic long before it can enter human communities.

Natural ecosystems and biodiversity provide a range of free and universal services to all humans without discrimination. Nature provides us with clean air and drinking water; nourishes the soil and agricultural productivity; mitigates extreme weather events; treats waste and toxins; recycles nutrient; and sequesters carbon, all at no cost. Plants and animals—that have immense health value as a treasure trove of genetic information from which we have derived countless medical breakthroughs—are at the center of these services. Generally, the higher the biodiversity in an ecosystem, the greater its productivity and utility to humankind.<sup>27</sup> Our current destruction of natural areas—together with the overexploitation of species—is changing how ecosystems look and behave in ways that will weaken human health and well-being for decades to come.

Disease regulation is one of the ecosystem services most threatened by the decline in nature and biodiversity.<sup>28</sup> When land use changes and habitat fragmentation kill off wildlife species in an ecosystem, the remaining animals and plants that survive human intervention can proliferate in the absence of predators and competitors, thereby reaching abnormally high densities. Pathogens that specialize in a single species can then proliferate unchecked alongside their carriers.

For example, the eastern United States has lost nearly 2.4 million acres of natural areas to urban and suburban sprawl from 2001 to 2017.<sup>29</sup> Medium-sized mammals such as bobcats, red foxes, skunks, and opossums have suffered population declines as contiguous habitat turns into a patchwork fragmented by roads, buildings, and suburban sprawl. In their absence, white-footed mice have managed to thrive and turn into a potent reservoir for Lyme disease.<sup>30</sup> Over the last 25 years, human Lyme disease infection rates have skyrocketed due to fragmented, smaller forests that have a seven-times higher density of infected ticks due to this imbalance in the ecosystem.<sup>31</sup>

Similarly, scientists have linked the spread of the mosquito-borne West Nile virus to the decline in diversity of bird species in the United States.<sup>32</sup> Lower bird diversity is associated with increased risk of transmission to humans, since the few bird species that thrive in human-altered landscapes tend to be the ones most susceptible to spreading the disease.<sup>33</sup>

Scientists have called for the protection of 30 percent of U.S. lands and waters by 2030<sup>34</sup>—a goal that would help stem the nature crisis and the erosion of nature as a bulwark against disease. Currently, only 12 percent of U.S. land is permanently protected in a natural condition. Twenty-three percent of the U.S. ocean is strongly protected from extractive uses, but nearly all these protected areas are in the western Pacific Ocean, far from the continental U.S. In short, the nation's status quo protections for lands and waters are inadequate. Policymakers at every level of government should formulate an ambitious plan to protect and conserve more of the natural world in service of this important conservation target.

In addition to expanding the United States' system of protected land and ocean areas, we need to uphold and fund science-driven laws such as the Endangered Species Act (ESA) and the Migratory Bird Treaty Act that safeguard individual species of plants and animals. Biodiversity serves as a barometer of ecosystem and human health—and, increasingly, as a source of lifesaving medicines. More than half of the most popular prescribed drugs in the United States are linked to discoveries from biodiversity. Experts estimate that, at the current extinction rate, we are losing out on one major medicinal breakthrough every two years.<sup>35</sup> Many of these potentially lifesaving species—such as the threatened Gila monster<sup>36</sup> and the endangered Houston toad<sup>37</sup>—are at risk due to the weakening of laws like the ESA and the onslaught of industrialization and urban sprawl.

Finally, we need to strengthen structures and policies that enable indigenous and tribal groups to manage land and natural resources. Expanding tribal co-management of protected areas is not only an important part of respecting tribal sovereignty but can also have positive effects on biodiversity and ecosystem services. Studies have linked indigenous land management with a higher average number

of species across diverse landscape types around the world.<sup>38</sup> In the United States, where nature has suffered immense degradation over the last two decades, tribal lands have fared better than those under federal, state, or private ownership.<sup>39</sup>

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## Create more close-to-home places to get outdoors

The health and safety of families in America are inextricably linked to the health of our natural world. Open space—and a community’s access to open space—has been shown to yield a broad range of mental and physical health benefits.<sup>40</sup> Illustratively, at the outset of the pandemic, the Centers for Disease Control and Prevention and state health departments recommended that people stay active and healthy,<sup>41</sup> including by getting outside.<sup>42</sup> As more and more people seek places to exercise, reflect, or simply find solitude, it’s increasingly clear that that nature is not an amenity—it is essential to our well-being.

The global pandemic has also made clear that our system of local, state, and federal parks and public lands needs to be dramatically expanded. In a just, equitable, and healthy America, every person and every community will have close-to-home access to open space and the great outdoors.

America’s demand for nature is not in question. National parks have increasingly experienced overcrowding in the past decade.<sup>43</sup> Consistently packed parking lots, crowded trailheads, and traffic jams have generated debates about how to protect both the parks’ resources and visitor experiences. The crowds have not slowed during the pandemic. If anything, Interior Secretary David Bernhardt’s directive to waive entrance fees at national parks encouraged people to flock to the remaining open parks and public lands,<sup>44</sup> putting gateway communities and rural health systems at risk.<sup>45</sup> Local and state parks are experiencing similar trends.<sup>46</sup> The need for more parks and public lands—particularly those close to population centers—has come sharply into focus.

Decisions about where to protect more open space must account for the needs of different geographies and populations. For too long, low-income communities and communities of color have been disproportionately affected<sup>47</sup> by the loss of natural areas. These same communities are less likely to have a park or natural areas nearby.<sup>48</sup> The Trust for Public Land, for example, found more than 100 million people—nearly one-third of the U.S. population—do not have a park within a 10-minute walk from home.<sup>49</sup> As policymakers accelerate the pace of conservation, they must ensure that all communities have equitable access to nature, open space, and places to play outdoors.

Programs that fund the creation of new parks and open space, such as the Land and Water Conservation Fund (LWCF), are critically important to increasing our pace of conservation. The LWCF is a program that uses revenue from offshore oil and gas drilling to protect open space—from national parks, forests, and wildlife refuges to local parks, trails, and playgrounds. Natural areas and cultural resources in all 50 states have been protected for future generations through this popular program.<sup>50</sup> The LWCF was permanently reauthorized in 2019 but hasn't been permanently funded, and, for decades, Congress has broken its promise to the American people by siphoning money away from the program. The result is a backlog of places deserving of protection that could be serving countless communities amid this health crisis. The LWCF must be fully funded—and indexed to inflation—to support healthy communities and expanded access to the outdoors.

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## Conclusion

Protecting nature is our first, best, and most cost-effective line of defense against future pandemics. Concerted steps to curb illegal wildlife trafficking and logging; stem the rapid loss of natural areas; and protect much, much more land and water will safeguard human health and strengthen the nation's economy. As Congress develops additional legislative responses to this deadly coronavirus pandemic—including through economic stimulus investments—legislators must incorporate ideas and strategies for protecting and restoring nature in the U.S. and around the world. After all, with more than half of the world's economy moderately or highly dependent on nature and its services, we destroy nature at our peril.<sup>51</sup> By integrating conservation policy into the foundation of how we approach disease prevention and response, policymakers can chart a healthier and more prosperous path for the United States.

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