DISPROPORTIONATE HARM

DISPROPORTIONATE HARM TO PEOPLE OF COLOR COMMUNITIES | JANUARY 10, 2023

Pollinator Decline Leads to Crop Losses, Malnutrition, and Highest Threat to Low-Income

Pollinator losses are responsible for reducing the global production of nuts, fruits, and vegetables by three to five percent, and this loss of healthy, nutrient-dense food is resulting in over 425,000 excess human deaths each year, according to research published late last year in Environmental Health Perspectives. While the connection between pollination, food production, and health is intuitive, the study traces shocking impacts that are directly harming the well-being of people now, and is a clear sign that pollinator losses requires serious attention and meaningful action. To those who consider the decline of pollinators to be a vague, amorphous future threat, this study challenges that myth. According to researchers, "Today's estimated health impacts of insufficient pollination would be comparable to other major global risk factors: those attributable to substance use disorders, interpersonal violence, or prostate cancer."

Per a United Nations report, 75 percent of the world's food crops depend at least in part on pollination, with pollinators contributing an estimated $235 to $577 billion to global crop production annually. Pollinator declines are already adversely impacting food production. A 2016 paper by many of the authors of the current study determined that in general, when there is a difference between high and low production on a farm, regardless of crop type, lack of pollinator populations account for 25 percent of the yield gap. This translates to a reduction of income for farmers with devastating impact in low-income countries and on low-income farmers. However, no study had yet investigated how these losses translate into real world impacts. Thus, the authors ask: If there were no pollinator losses, how much food would have been produced, who would have eaten it, and would that have averted any diet-related diseases or deaths? Further, the authors consider the economic cost of lost yields, particularly on low-income countries.

To answer how much food would have been produced were pollinators still thriving, scientists compare current yields to what they term "attainable yields," which represent the 90th percentile of yield within a given region on a global scale. Having determined the yield gap, an average weight is then assigned to determine the contribution of pollinators to this disparity. Economic impacts are more complicated, as there are a multitude of variables for both supply and demand; on the supply side farmers may change what or how much they plant, and demand is determined by price and consumers ability or willingness to pay. Researchers focus their economic review on three low-income countries—Nepal, Honduras, and Nigeria.

When cost increases, many consumers will not be able to afford to eat enough nutrient-dense, pollinator-

dependent foods like fruits, vegetables, and nuts. To determine how this translates to health outcomes, a global risk-disease model is utilized, looking at risk factors associated with low consumption of fruits, vegetables, legumes, and nuts. Diseases used in the model include stroke, type 2 diabetes, cancer, heart disease, and an aggregated "all cause mortality" associated with weight changes.

Final calculations show that pollinator declines account for losses of 4.7 percent of all fruit production, 3.2 percent of vegetables, and 4.7 percent of nuts. Yield gaps are determined to be independent of other variables like geography and other landscape characteristics. Low-income countries (as defined by the World Bank) are experiencing the most pronounced yield gaps, with an estimated 26 percent and 8 percent loss in overall vegetable and nut production on average.

Pollination declines also hit the economy of low-income countries hard. The annual lost economic value of all agricultural crops, as determined by researchers, is 12 percent in Honduras, 17 percent in Nigeria, and 31% in Nepal. Economic losses do not match up directly with production losses, which are 3 percent, 15 percent, and 19 percent, respectively, for the same countries. "The greater percentage economic loss compared with production loss (by weight) suggests that pollinated crops constituted high-value commodities for these countries," the authors note, indicating that most value is lost through declines in fruit and vegetable production. In sum, these impacts result in annual lost value per farmer of $209, $250, and $325 (U.S. dollars) for the same countries, respectively. Such losses are staggering in the context of these countries, where per farmer annual income tops out at less than $1,500.

Not only are pollinator losses throwing farmers into financial turmoil, the impacts also result in a shocking 427,000 excess deaths each year, primarily from chronic disease. Interestingly, it is middle and high income countries where these excess deaths are most pronounced. According to the study, 1% of total annual mortality in upper-middle and high income countries can be attributed to loss of pollination. Lower fruit and vegetable intake accounts for 189,000 and 151,000 deaths, respectively, from stroke, heart disease, and cancer, and a reduction in nut consumption is resulting in an estimated 99,000 deaths each year.

Prior studies have shown that pollinator declines will result in increased malnutrition from lost micronutrient consumption and nutrient deficiencies. But this latest research deals less with the potential impacts and makes determinations based on what is happening currently. To be clear, this study shows that people today, in the United States and around the globe, are dying because the loss of pollinators has resulted in them being unable to afford to eat healthy fruits and vegetables on a consistent basis. These data paint a dismal future picture should society not act on a coordinated basis to revive pollinator populations.

The authors note that there is hope, writing that, "Diverse research investigating the optimal policies to benefit pollination have shown remarkable consensus around a short list of highly effective strategies: increase flower abundance and diversity on farms, reduce pesticide use, and preserve or restore nearby natural habitat." In order to reverse pollinator declines, these practices must be translated and institutionalized into enforceable policies.

SOURCE: Matthew R. Smith, et al., Pollinator Deficits, Food Consumption, and Consequences for Human Health: A Modeling Study, *Environmental Health Perspectives,* 130(12) December 2022. https://doi.org/10.1289/EHP10947.

DISPROPORTIONATE HARM | COMMENTARY | FEBRUARY 6, 2023

Taking a Holistic, Community-Based Approach to Toxic Pesticide Use to Achieve Environmental Justice

During Black History Month, it is of note that on January 10 the Biden-Harris Environmental Protection Agency (EPA) announced funding of approximately $100 million for "projects that advance environmental justice in underserved and overburdened communities across the country" through its Environmental Justice Government-to-Government (EJG2G) program. While viewed as assistance for those communities "disproportionately impacted by pollution and climate change," it is important to recognize that the same communities are also disproportionately impacted by activities that produce pollution and climate change. During this period, Beyond Pesticides called on EPA, governors, and mayors to support environmental justice by eliminating activists leading to pollution and climate change.

Beyond Pesticides points out a historical bias against preventive action to ensure the protection of those disproportionately poisoned by toxic chemicals. While critically important to clean up contaminated communities, stopping the flow of toxic pesticides at the front end is important because of the disproportionate poisoning effects of use, handling, transportation, and disposal. EPA regulates based on the acceptability of harm (which it calls risk), despite its limitations in (i) recognizing comorbidities and preexisting health conditions, (ii) considering a combination of multiple chemical exposure interactions, and (iii) citing extensive missing health outcomes

information (e.g., on endocrine disruption) and a resulting high level of uncertainty.

On the community level addressed by this funding project, EPA could assist communities to transition to organic land management. The EJG2G program could assist communities to manage local parks, playing fields, and greenways without unnecessary toxic pesticides.

But EPA's assistance must go beyond funding. EPA's pesticide registration decisions promote contamination of communities where pesticides are manufactured, stored, used, and disposed of. By ignoring impacts of pesticides on soil health, EPA's pesticide registration decisions promote the climate crisis. EPA's pesticide program must incorporate in all of its registration decisions an analysis of impact on the climate crisis, with particular attention to the protection of soil health.

A recent report, Exposed and At Risk*: Opportunities to Strengthen Enforcement of Pesticide Regulations for Farmworker Safety*, by the Center for Agriculture and Food Systems at Vermont Law and Graduate School, in partnership with the nonprofit advocacy group Farmworker Justice, again highlights the systemic racism of U.S pesticide policies. The nation depends on farmworkers, declared "essential workers" during the COVID-19 pandemic to ensure sustenance for the nation and world. Yet, the occupational exposure to toxic pesticides by farmworkers is discounted by EPA, while study after study documents the disproportionate level of illness among farmworkers. EPA must eliminate systemic racism in its pesticide program.

SOURCE: Biden-Harris Administration Announces Availability of $100 Million through Inflation Reduction Act for Environmental Justice Grants, EPA Press Office, January 10, 2023.

DISPROPORTIONATE HARM | JUNE 16, 2023

This Juneteenth, We Highlight the Ongoing Fight for Environmental Justice

Juneteenth is a celebration of freedom for the last 250,000 enslaved people in Galveston, Texas, but it is also a reminder that justice has not historically been "swift" or complete for Black Americans. The holiday commemorates the abolition of slavery in Texas on June 19, 1865, two and a half years after the Emancipation Proclamation.

According to a 2022 Gallup Poll, 40 percent of Americans know "a little bit" or "nothing at all" about Juneteenth. While this is a significant improvement in comparison to the 60 percent for the aforementioned metric in the previous year (when the holiday was federally recognized), greater public awareness is needed. This holiday is a time for individuals and organizations to acknowledge and reflect on their past and current actions or inactions that perpetuate systemic racism.

As known from the history books, the Emancipation Proclamation was signed

on January 1, 1863, and the civil war ended on April 9, 1865. Juneteenth is a lesser-known anniversary commemorating the emancipation of enslaved people who received news of their freedom two and a half years after President Abraham Lincoln's freedom proclamation. While the technologies in the 19th century had a much slower travel time, there were concerted efforts to withhold and delay the communication that "all slaves are free." The Congressional Research Service acknowledged the efforts to delay and keep enslaved plantation laborers for "one last cotton harvest."

The father of environmental justice, Robert Bullard, PhD, defines environmental racism as any policy or practice that unequally affects or disadvantages individuals, groups, or communities based on their race. Dr. Bullard states that, until the 1980s, environmental conservation and pollution were separate. Many environmental organizations prioritized the preservation of "wilderness" rather than urban areas, predominantly comprised of people of color (POC), who continuously experience the disproportionate impacts of pollution and the effects of environmental racism.

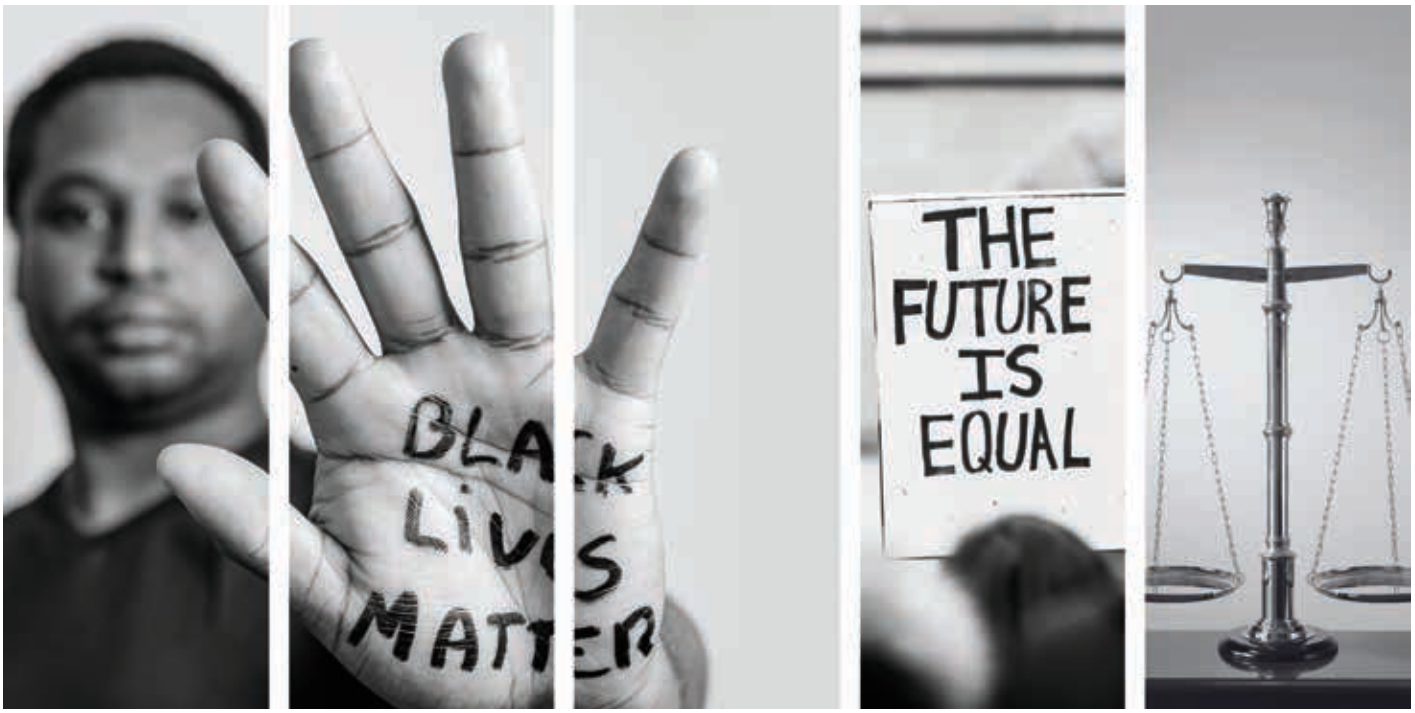
During the Jim Crow Era—following slavery—segregation propagated disparities between black and white communities, causing justice-related priorities to vary between demographic divides. Both the civil rights and environmental justice movements spread nationwide during the 60s and 70s. However, the two movements rarely coincided, and the implications are felt today. This division amplified the perception among civil rights advocates that environmentalism catered to white organizations and populations while ignoring POC and their struggles. However, this does not mean environmentalism was completely void of addressing racial inequalities. Many early environmental justice leaders came out of the civil rights movement, bringing the same tactics they had used in civil rights struggles—marches, petitions, rallies, coalition building, community empowerment through education, litigation, and nonviolent direct action.

The 1960s saw some of the first localized protests of environmental inequalities, such as:

- Latinx farm workers, led by Cesar Chavez, fought for workplace rights and against harmful pesticides in the farm fields of California's San Joaquin Valley.
- African American students took to the streets of Houston, TX to oppose a city garbage dump in their community that had claimed the life of a child.
- Residents of West Harlem, New York City fought unsuccessfully against a sewage treatment plant in their community.

Despite the localized attempts to mitigate environmental racism, it was not until 1982 that the gap between the environmental and civil rights movement started to narrow: This is the story of Warren County, NC, an impoverished, rural county that became the epicenter of the growing environmental justice movement—drawing nationwide attention to racial disparities.

In 1978, employees of Ward PCB (polychlorinated biphenyls) Transformer Company deliberately dripped 31,000 gallons of PCB-contaminated oil along approximately 240 miles of soil lining highway shoulders in North Carolina throughout 14 counties. By 1982, North Carolina had announced a plan to move soil contaminated with PCBs



from alongside 210 miles of the state's roadsides to a newly developed landfill located in Warren County—one of the few counties in the state with a majority African American population. PCBs are toxic chemicals that have links to birth defects, liver diseases, skin disorders, and cancers. The decision triggered a wave of protests, one of which resulted in the arrest of a U.S. congressman and dozens of activists who tried to block the PCB-laden trucks at the landfill's entrance. Unfortunately, the pressure against PCB soil dumping did not deter the decision and 60,000 tons of contaminated soil were dumped in the landfill and buried 7 feet, only 3 feet above many groundwater tables.

Because of the outrage over Warren County, the U.S. Government Accountability Office (GAO) evaluated the correlation between landfill locations with the racial demographics of surrounding communities. The report concluded that three of every four landfills in the Southeast U.S. were in or near communities with majority non-white populations—with more than a quarter living below the poverty line. Although officials eventually removed the PCB-laden soil from Warren County, 25 years later, race remains the predominant indicator of proximity to pollution in the United States (more than socioeconomic factors). Today, numerous reports and public awareness of environmental racism continue to build on the movement that originated in Warren County, North Carolina.

Beyond Pesticides is working in coalitions to eliminate the disproportionate burden of pesticide use in communities of color. The Black Institute, a member of Eco-Friendly Parks for All, published a groundbreaking report on disparate pesticide application in public parks near Black and Brown communities. This injustice in parks, as well as disproportionate occupational risk to farmers and landscapers, is particularly concerning when it leads to pesticide-induced diseases (e.g., respiratory illness, neurological disorders, endocrine disruption, cancers, etc.).

This injustice in parks, as well as disproportionate occupational risk to farmers and landscapers, is particularly concerning when it leads to pesticide-induced diseases (e.g., respiratory illness, neurological disorders, endocrine disruption, cancers, etc.).

Examples of disproportionate risks include:

- African American women are 40 percent more likely to die from breast cancer than women of any other racial group. Even more concerning, incidences of triple-negative breast cancer—an aggressive breast cancer subtype lacking remediation—is approximately three-fold higher in non-Hispanic Black women compared to non-Hispanic White women. Although past studies suggest genetics produce these demographic differences in breast cancer outcomes, scientists now believe genetic factors only play a minor role compared to external factors (i.e., chemical exposure).
- The death of a young boy with leukemia highlighted yet another instance of environmental injustice. The incidents of acute lymphoblastic leukemia in the boy's community were nearly five times higher than the national average. Thousands of Black residents are suing Union Pacific Railroad Company for contaminating their properties with highly hazardous creosote wood preservatives with known carcinogenic properties.
- More than five decades prior to chlorpyrifos revocation (removal of chemical for all uses later rescinded), the toxic organophosphate insecticide disproportionately harmed low-income African American and Latinx farmworkers (and their families) who harvested much of the domestic—and contaminated—crops of grapes, citrus, and sugar beets, among others. Risks of exposure to chlorpyrifos impact neurological, reproductive, and endocrine systems.
- The Black Institute aggregated information from numerous public records and reported on the disproportionate risk to communities of color regarding the distribution and concentration of toxic pesticides. The Poison Parks Report found dangerous concentrations of pesticides in Idlewild Park. Surrounding communities, 90 percent of which were African American, had concentrations of glyphosate at 50 percent in 2018 (compared to "normal concentrations" at 0.5–3 percent). No concentration of glyphosate has been demonstrated to be safe for human health and the World Health Organization's International Agency for Research on Cancer identifies glyphosate as a probable carcinogen.

Although there are regulatory systems in place to evaluate and monitor pesticide use and exposure limits (i.e., the *Federal, Insecticide, Fungicide, and Rodenticide Act* [FIFRA] and the *Food Quality Protection Act* [FQPA]), pesticide-related illnesses continue to disproportionately harm communities of color. Regulations ignore people with increased vulnerabilities due to preexisting health conditions—most often associated with racial and socioeconomic factors. For example, federal pesticide law does not consider the cumulative effect of high-exposure and high-risk occupations.

Partnering with activists in communities of color to address agrochemicals' impacts can be a start to alleviating inequalities. However, changes in policy are required in the food system so that the burdens placed on POC communities are no longer overlooked. More reporting on environmental justice can be found in "Disproportionate Pesticide Harm Is Racial Injustice: Documenting Victimization: Structural Racism" in *Retrospective 2021: A Call to Urgent Action*.

SOURCE: Juneteenth: Fact Sheet, Congressional Research Service, Updated May 30, 2023.

DISPROPORTIONATE HARM | OCTOBER 9, 2023

On Indigenous Peoples' Day, Highlighting Indigenous Knowledge to Address the Biodiversity Crisis

On this Indigenous Peoples' Day, the world turns its attention to the invaluable wisdom that Indigenous communities possess, highlighting their crucial role in addressing the global biodiversity crisis. While facing disproportionate harm from unjust policies and practices that pollute, Indigenous communities are gaining federal and international recognition as key players in preserving the planet's ecological balance.

Many Indigenous communities have a profound connection to, and unique relationship with, their land, carrying with them ancestral wisdom that has sustained their ecosystems for generations. Indigenous knowledge, passed down through centuries, emphasizes the intricate relationships among species, the balance of ecosystems, and the importance of coexistence with nature. This knowledge has allowed Indigenous Peoples to thrive sustainably for millennia.

In the face of the growing biodiversity and climate crises, Indigenous wisdom and traditional insights are a part of the solution. During the 2022 White House Tribal Nations Summit, the White House Office of Science and Technology Policy (OSTP) and Council on Environmental Quality (CEQ) unveiled historic guidance for federal departments and agencies regarding Indigenous Knowledge. This guidance, accompanied by an implementation memorandum, acknowledges the importance of valuing and adopting Indigenous Knowledge into federal decision making to enhance scientific and policy decisions. "As the original stewards of the natural environment, Tribes and Indigenous communities have expertise critical to finding solutions to the climate crisis and protecting our nation's ecosystems," said CEQ Chair Brenda Mallory. "The guidance released today will help ensure that their voices are included across the Federal Government for the collective benefit of our communities and the planet."

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Examples of traditional knowledge being used to improve biodiversity include:

- Traditional knowledge is being utilized to improve biodiversity in the largest dam removal project in U.S. history, along the California-Oregon

border. The Klamath River restoration and dam removal project is collaborating with the Lower Elwha Klallam Tribe, the Karuk Tribe, the Yurok Tribe, and other Native American tribes to plant and monitor nearly 17 billion seeds to recreate the pre-dam ecosystem. Upon completion, this project will open more than 400 miles of river for threatened species and contribute to a diverse native ecosystem.

- Scientists are partnering with tribes to study traditional practices that improve biodiversity in ecosystems. One study was conducted on black oaks with interviews and workshops involving tribal members with ancestral knowledge of black oak burning practices. The study revealed opportunities to reintroduce low-intensity fires, along with thinning, to restore black oak stands that are conducive to acorn gathering. The findings also highlighted examples of overcoming challenges in restoring the socio-ecological benefits of black oak ecosystems for indigenous tribes.

Encroachment on Indigenous lands, the expansion of extractive industries, and shifting climate patterns have threatened the delicate balance that many Indigenous Peoples maintain with nature. The global biodiversity crisis mirrors these interdependent systemic issues as species extinction, habitat degradation, and ecosystem imbalances become more urgent.

For more examples of tribes that are having positive environmental impacts, visit this Smithsonian website. To learn about international examples of indigenous knowledge to improve biodiversity, see this video.

Encroachment on Indigenous lands, the expansion of extractive industries, and shifting climate patterns have threatened the delicate balance that many Indigenous Peoples maintain with nature. The global biodiversity crisis mirrors these interdependent systemic issues as species extinction, habitat degradation, and ecosystem imbalances become more urgent. Recognizing the importance of Indigenous knowledge remains an essential first step, and President Biden's proclamation on Indigenous Peoples' Day in 2022 underscored the significance of respecting Indigenous sovereignty and incorporating Indigenous voices into government decisions. As President Biden said, "On Indigenous Peoples' Day, we honor the sovereignty, resilience, and immense contributions that Native Americans have made to the world; and we recommit to upholding our solemn trust and treaty responsibilities to Tribal Nations, strengthening our Nation-to-Nation ties. . . [T]oday, they remain some of our greatest environmental stewards." For more information on the proclamation, read Beyond Pesticide's reporting here. Such recognition from the U.S. government signifies an awareness of the critical role Indigenous Peoples play in the conservation of biodiversity.

- The restoration of the Elwha River by the Lower Elwha Tribe, featured in the image above, serves as a shining example of how Indigenous and scientific partnerships can contribute to environmental restoration and conservation. The project began after the removal of two large hydropower stations.
- Kawerak, an Indigenous organization in western Alaska, issued a call for knowledge sovereignty and the indigenization of knowledge. Their concerns center on how research, research funding, and research prioritization have historically excluded Indigenous and local communities. The organization laid out a practical plan for repositioning research agendas to be more inclusive and respectful of Indigenous and local perspectives.

Biodiversity decline is a global problem that requires international collaborations and diverse perspectives. The Indigenous Peoples' Alliance of the Archipelago (AMAN), an independent organization representing over 2,500 Indigenous communities and approximately 20 million individual members across Indonesia, estimates that the nation is home to 50 to 70 million Indigenous individuals within its 250 million population. AMAN has played a pivotal role in advocating for Indigenous rights and knowledge. Despite legal recognition of Indigenous rights in the Indonesian Constitution, there have been challenges in fully implementing the Indigenous Peoples Law, which remains a bill in Parliament—leaving Indigenous communities vulnerable to land grabs and discriminatory regulations.

Some of the challenges in utilizing traditional knowledge reflect broader issues of land rights. Indigenous communities frequently experience marginalization and discrimination within national legal systems, exacerbating their vulnerability to violence and mistreatment. When Indigenous Peoples lack human rights, it is not only unjust and inhumane, but it also undermines resource management and conservation practices that help sustain a livable world for all. Land return, also known as land reparations, land restitution, or land repatriation, refers to the process of recognizing land theft, the loss of lives, and the devastation of cultures.

In alignment with environmental justice as a human rights issue, Marcos Orellana, PhD, Special Rapporteur on toxics and human rights and National Forum Series speaker, emphasized the legacy of severely contaminated sites on indigenous lands at the Permanent Forum on Indigenous Issues in 2022. From pesticide drift to exposure through contaminated waterways, "the list of toxic exposures on indigenous peoples is long," despite the Declaration on the Rights of Indigenous Peoples and International Labour Organization (ILO) Convention No. 169. Dr. Orellana further noted that "toxics are a form

of violence against the land and its people."

There is growing evidence of the role of Indigenous knowledge at the international level, yet despite this recognition, roadblocks remain that prevent genuine collaboration with Western science for effective conservation and resource management. One such challenge discussed in the opinion piece "Science Must Embrace Traditional and Indigenous Knowledge To Solve Our Biodiversity Crisis" is the "gatekeeper" problem, when a few individuals become the sole experts on a particular community or issue, potentially drowning out the diverse knowledge streams and grounded perspectives of Indigenous and traditional communities.

Chief Edwin Ogar of the Ekuri Initiative, ICCA Consortium Honorary Member Gretta Pecl, and Council Member Tero Mustonen, the opinion piece authors, explain that it is crucial to shift the link between policy and research away from simplistic, one-size-fits-all solutions and slogans and toward the needs on the ground. This includes investing in training and learning from past successes and failures.

As the United States commemorates Indigenous Peoples' Day, it is a moment to celebrate the resilience and wisdom of Indigenous communities. Their traditional knowledge offers solutions to the biodiversity crisis, emphasizing the importance of preserving sovereign Indigenous lands and communities—working collectively to protect and preserve the planet's rich tapestry of life for future generations.

SOURCE: Honoring Original Indigenous Inhabitants: Land Acknowledgment, Native Knowledge, Smithsonian: National Museum of the American Indian, accessed 2023; Natural Wisdom: Indigenous communities and defending biodiversity, Earthrise, YouTube Aljazeera, 2021.

DISPROPORTIONATE HARM | OCTOBER 26, 2023

Neurodevelopmental Disorders Studied as an Environmental Justice Concern

The increasing prevalence of neurodevelopmental disorders (NDDs) in the United States has raised concerns about the impact of toxic exposures on child development. A comprehensive review by lead author Devon Payne-Sturges, PhD and colleagues in *Environmental Health Perspectives* analyzes the literature about disparities in NDDs in vulnerable and marginalized populations. The review investigates over 200 studies and reveals that fewer than half of these studies actually examine disparities, and most fail to provide a rationale for their assessments. The authors also offer practical suggestions for improving future research, including better methods for characterizing race and socioeconomic status and interpreting effect modification in environmental

epidemiologic studies of health disparities.

Dr. Payne-Surges, associate professor at the University of Maryland's School of Public Health and a former policy specialist at the U.S. Environmental Protection Agency (EPA), said, "FDA and EPA can act now—not later—to protect families from neurotoxic chemicals in consumer products and in the environment."

Tanya Khemet Taiwo, PhD, the other lead author and assistant professor at Bastyr University in Seattle, said, "We need more stringent environmental standards to address pollution that is disproportionately impacting low-income communities and communities of color, but it's just as important that we find a way to improve the unjust systems and social policies that create harmful conditions in the first place."

Given the disproportionate toxic burden in the U.S., children from marginalized groups and low-income families are more likely to face a variety of harmful exposures that can negatively affect childhood development. These disparities are linked to neurodevelopmental disorders. NDDs are defined as conditions related to the functioning of the nervous system and the brain, including: attention-deficit/hyperactivity disorder (ADHD), autism, learning difficulties, intellectual disability (cognitive impairment), conduct disorders, cerebral palsy, and challenges related to vision and hearing.

Among the 218 studies written between 1974 and 2022 that were investigated by Dr. Payne-Stuges, et al., the following patterns emerged:

- Black and Hispanic children have higher exposure to organophosphate pesticides, commonly used in agriculture.
- Black and Hispanic mothers have elevated levels of phthalates, chemicals found in food packaging, personal care products, and other environmental sources.
- Low-income and Black children have more significant lead exposures compared to their higher-income and white counterparts.
- Communities of color and low-income neighborhoods experience a disproportionate exposure to air pollution.
- Babies residing in economically disadvantaged neighborhoods exposed to air pollution during their first year of life are at a higher risk of being diagnosed with autism compared to those in more affluent areas.

Environmental justice scholars have connected the unequal and disproportionate toxic exposures to discriminatory policies and practices, including racial residential segregation. With decades of executive orders addressing environmental justice, the recognition of unequal pollution distribution in historically marginalized communities has recently gained federal research funding through the Justice40 Initiative and other policies. However, there has been a history of commitments that have not played out, as envisioned by its supporters. A U.S. General Accountability Office (GAO) report, Environmental Justice: Federal Efforts Need Better Planning, Coordination, and Methods to Assess Progress (2019), found, "Most of the 16 agencies that are members of the interagency working group on environmental justice—created by Executive Order 12898 in 1994—reported taking some actions to identify and address environmental justice issues, such as creating data tools, developing policies or guidance, and building community capacity through small grants and training." However, GAO concluded that ". . . few agencies have measures or methods for assessing progress, and the working group has not provided guidance to help agencies with such assessments."

Beyond Pesticides issued an action in 2021 that points to a generation of EPA neglect of farmworker children's exposure to the neurotoxic insecticide chlorpyrifos. The pesticide and the family of organophosphates, of which it is a part, targets the nervous system in humans. EPA had negotiated a withdrawal from the market of all residential uses of chlorpyrifos in 2000 because of the neurotoxic effect on children, but left the agricultural uses on the market, with a few exceptions. This left farmworker children exposed to chemical drift in their communities and schools, while EPA took no action for nearly two decades. Children are particularly at risk because they take in greater amounts of pesticides relative to their body weight than adults, and their developing organ systems are typically more sensitive to toxic exposures. The agency finally negotiated a withdrawal of agricultural uses in 2022, which was reversed.

The Payne-Sturges, et al. review emphasizes the potential shortcomings of relying solely on models of "effect modification" to assess health disparities because it often addresses only one aspect of the problem. Many studies in the review focus on lead and air pollution exposures, which often affect under-resourced communities housing marginalized populations. These communities may face multiple hazardous exposures from sources like high-traffic roads, industrial facilities, deteriorating municipal infrastructure, and substandard housing. Such conditions can have cumulative effects, and historical and continued segregation contributes to repeated toxic exposures. Despite this, most studies in the review assessed these exposures independently.

The review highlights that children continually exposed to known neurotoxic substances often experience delayed diagnoses and barriers to necessary services. Moreover, cognitive impairments and poor academic achievement can exacerbate economic hardship. Consequently, measures of neurodevelopmental delay and impairment might be more effective in assessing the impact on underserved groups. While many environmental studies consider socio-demographic factors tied to health disparities like race, income, education, and other sociodemographic factors, there is a recent shift toward evaluating NDD factors in collecting data. Yet, solely looking at individual race and ethnicity might not capture the full extent of structural racism.

According to the authors, looking at area-based indicators of structural racism, such as unemployment rates, rental percentages, segregation metrics, and police activity frequency, could improve understanding of racial disparities.

The authors of the study consider the complex paradigms and racist structures underlying the toxic disparities. They note that greater diversity in research teams and collaboration with community members with firsthand experience is vital. The authors stress the importance of stakeholder engagement in interventions and addressing the structural barriers contributing to environmental health disparities. The Equal Protection Clause of the 14th Amendment is cited as a potential tool to protect children from hazardous exposures and reduce community exposure through regulation and public health practices.

The review aligns with a history of awareness of the disproportionate exposure to neurotoxic chemicals experienced by children of color and those from low-income families. Ultimately, this research aims to reduce the burden of hazardous exposures on children's health and promote more equitable protection against neurotoxic chemicals.

SOURCE: Devon C. Payne-Sturges, et al., Disparities in Toxic Chemical Exposures and Associated Neurodevelopmental Outcomes: A Scoping Review and Systematic Evidence Map of the Epidemiological Literature, *Environmental Health Perspectives,* 131(9) September 2023.

DISPROPORTIONATE HARM | DECEMBER 4, 2023

Protection of Pregnant Farmworkers Under Civil Rights Protection; Will There Be Enforcement?

With a history of neglect of farmworker protection in the workplace, advocates are pointing to the need for ensuring stringent enforcement of regulations that took effect in April 2024 under the Pregnant Workers Fairness Act (PWFA). In addition to weak laws and protections that typically exempt farmworkers, enforcement for farmworker protections that do exist has been criticized as inadequate. A report on enforcement of wage and hour law under Wage and Hour Division of the U.S. Department of Labor (DOL) has documented diminished capacity to detect and enforce against violations. A report by the Economic Policy Institute (2020) shows the dramatic failures of DOL, which is underfunded and understaffed, to enforce the law. As the agency charged with operationalizing the new law to protect farmworkers, the Equal Employment Opportunity Commission (EEOC) will be up against a federal pesticide law enforcement system that is dependent on agreements with state agencies, mostly departments of agriculture, that have a history of failing to enforce the limited protections provided for farmworkers. The EEOC

is headquartered in Washington, D.C. and operates 53 field offices in every part of the country.

Farmworkers have endured a long history of discrimination in the United States. The enforcement of pesticide law and protection of farmworkers has been criticized for decades. When the U.S. Environmental Protection Agency (EPA) was formed in 1970, it was given the responsibility for farmworker protection, instead of DOL. Enforcement authority was then delegated to the states under the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA). According to Exposed and At Risk, the current "complex system of enforcement . . . lacks the capacity to effectively protect farmworkers. . . . [and] the cooperative agreement[s] between federal and state agencies makes it nearly impossible to ensure implementation of the federal Worker Protection Standard."

With the passage of PWFA, new standards will need to be enforced to ensure that pregnant farmworkers are protected. The law applies to workplaces with 15 or more employees, extends protection for pregnant workers for disability (including temporary or short-term disability) associated with childbirth, miscarriages, or related conditions. The legislation was passed as part of the *2023 Omnibus Spending Bill* and signed into law by President Biden in December 2022.

This law should, according to health advocates, be used to improve protections for farmworkers and other high-risk employees from the elevated adverse impacts on reproductive health associated with pesticides. One of the law's key provisions is an anti-retaliation clause that protects workers asking for "reasonable accommodation." In addition, accommodations for pregnant workers cannot be imposed by the employer, but must be agreeable to the worker as well.

Barriers for pregnant farmworkers have been demonstrated in California, where farmworkers—regardless of citizenship status—who are exposed to pesticides can take time off during the pregnancy as a preventive measure if other accommodations are not available, receiving 70 percent of their wages to make up for lost income (to be increased to 90 percent for low-wage workers in 2025). Farmworkers in California who are exposed to pesticides can access this program practically from the time they find out they are pregnant because of the risk pesticide exposure poses. However, farmworkers have historically been shut out of these programs due to language and access barriers, lack of information for workers and their medical care providers, and racism.

The nation depends on farmworkers, yet the occupational exposure to toxic pesticides by farmworkers has led to criticism of EPA, while study after study documents the disproportionate level of illness among farmworkers. Many farmworkers are migrant workers, and are subject to conditions that would not be permitted for U.S. citizens.

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SOURCE: U.S. Equal Employment Opportunity Commission, What You Should Know About the Pregnant Workers Fairness Act | U.S. Equal Employment Opportunity Commission (eeoc.gov).

MORE ON THIS SUBJECT

Hazardous Fumigant in Food Production Harmful to Farmworkers, Groups Call for Ban—January 3, 2023

Building Collective Action with a Call for Justice, Equity, and Safety on Martin Luther King, Jr. Day—January 16, 2023

EPA Proposes Reinstating Obama-era Farmworker Protections and Adds Compromises with Industry—February 28, 2023

Take Action: Farmworker Protections Fall Short—March 6, 2023

Take Action: Air Contamination from Agricultural Fumigants Threatens Farmworkers and Their Communities—May 22, 2023

EPA's Failure to Assess Multiple Chemical Exposure Threat Creates Environmental Injustice, Says Inspector General—September 6, 2023

Second Session of National Forum on Environmental Justice; Recording of Forum Talks by Dave Goulson and André Leu Released—September 22, 2023

Chicago PCBs Lawsuit Seeks Pesticide Corporation's Accountability for Harm to Marginalized Communities—October 3, 2023

New Federal Law Seeks to Protect Pregnant Workers, Farmworkers at Elevated Risk—November 28, 2023

DISPROPORTIONATE HARM | OCTOBER 19, 2023

U.N. Special Rapporteur on Toxics and Human Rights and Environmental Justice Historian to Speak at Forum

The second session of the 40th National Forum, Forging a Future with Nature, focused on environmental justice and offered a unique conversation with the United Nations Rapporteur on Toxics and Human Rights and an environmental justice history professional.

Beyond Pesticides brought together this Forum session with the inspiration of the words of Dr. Martin Luther King, Jr., who wrote in Letter from a Birmingham Jail (1963), "Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly

The Forum takes place in the context of widespread toxic chemical exposure throughout communities and all strata of society, but with the recognition that there is disproportionate harm in society to people of color from high-risk occupational exposures (e.g., farmworkers, landscapers, chemical manufacturing), chemical manufacturers' emissions in fenceline communities, pesticide drift in agricultural communities, and toxic exposure to essential workers, and those with preexisting and multigenerational illness.

Speakers: Marcos Orellana, PhD, the Special Rapporteur on toxics and human rights, addressed the toxic legacy of severely contaminated indigenous sites at the Permanent Forum on Indigenous Issues (1992), saying, "Highly hazardous pesticides sprayed by the agro-industrial complex and irresponsible Governments. . . .reflect the alienation between humanity and nature." Jayson Maurice Porter, PhD wrote in Agrochemicals, Environmental Racism, and Environmental Justice in U.S. History (2022), "Robert Bullard defines environmental racism as any policy or practice that unequally affects or disadvantages individuals, groups or communities based on their race. Vann Newkirk II adds that environmental racism is the opposite of environmental justice and often ignores or belittles input from the affected communities of color." In "Cotton, Whiteness, and Poisons" (*Environmental Humanities*, Nov. 2022), coauthor Dr. Porter writes about a U.S. history of "labor exploitation conditioned by racist ideologies" underpinning plantation agriculture.

Having witnessed attempts to establish risk reduction measures that allow continued and disproportionate harm, Beyond Pesticides through its program advances the elimination of petrochemical pesticides and fertilizers by 2032 and a shift to organic management of land and the built environment. A recording of the session is available on the Beyond Pesticides website.

SOURCE: 40th National Forum Series: *Forging a Future with Nature—The existential challenge to end petrochemical pesticide and fertilizer use,* Session 2—Environmental Justice, Oct. 24, 2024. See video of session.