

A Walk in the Park for Environmental Justice: Educational Tours of New York City Green Spaces and Beyond

Eugenia Naro-Maciel

New York University, Liberal Studies, New York, USA

Contingencies: A Journal of Global Pedagogy, volume 4, number 1, Winter 2025;

<https://doi.org/10.33682/epyq-nuvx>

Abstract:

The Earth is confronting pressing climate, biodiversity, and ecological health collapses, deeply connected to justice and equity, which demand the higher education community's attention. This article presents *A Walk in the Park for Environmental Justice: New York City*, a collection of free online guided tours of green spaces, with options for people with disabilities. Set in a globally significant urban center whose diverse public parks embody the complexities, challenges, and opportunities of environmental justice, these audio-guided walks engage participants in active, experiential learning as they explore the city's green spaces. Furthermore, participants may employ the user-friendly platforms and materials as models to create their own tours for any site they may choose, whether local, iconic, complex, or otherwise of interest. Each tour lasts about an hour and includes ten stops that take participants through history, from ancient Earth to the Indigenous era, colonization, enslavement, industrialization, park establishment, and the present day. Along the way, learners engage with site-specific information, such as the history of the African American Seneca Village community displaced to make space for Central Park in the 19th century. These elements are explored through the lenses of environmental justice, biodiversity, ecological health, climate change, and just sustainability. Each tour offers wildlife observation opportunities and thought-provoking reflection questions. The visits intentionally counter the exclusionary and elitist history of many parks, instead embracing an ecocentric perspective that amplifies historically underrepresented human and nonhuman voices, aiming to empower all users in pursuit of a universally just and sustainable future.

Keywords: Environmental Justice; Just Sustainability; Audio-guided Walks; Green Space Tours

“Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction” (First National People of Color Environmental Leadership Summit).

“Environmental justice embraces the principle that all people and communities are entitled to equal protection of environmental, energy, health, employment, education, housing,

transportation, and civil rights laws and regulations” (Bullard, “Environmental Justice – Once a Footnote, Now a Headline,” 244).

A “just” sustainability is therefore: “The need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems”(Agyeman et al., Just Sustainabilities: Development in an Unequal World, 5).

Introduction

Planet Earth faces significant and far-reaching environmental crises driven primarily by human activity (IPBES; IPCC 2023). The population has exploded to over 8 billion people (Figure 1), exacerbating humanity’s ecological and climate footprints, or impacts, in tandem with overconsumption and technology (Ehrlich and Holdren 1212; GlobalFootprintNetwork; Holdren 66). Around 1950 this growth converged with rising pollution, carbon dioxide, wildlife extinction and degradation, nuclear signatures, and more in the “Great Acceleration” of earth system indicators (McNeill and Engelke 1). The interconnected biodiversity, climate, ecological health, and environmental justice disruptions are increasingly acting as threat multipliers, fueling the “global polycrisis” of converging social, economic, and environmental risks (Heinberg 32). The world faces real dangers of exceeding planetary boundaries and reaching tipping points, in which systems suffer substantial and irreversible change, analogous to the sway of a seesaw, or the looming transformation of the vibrant and biodiverse Amazon rainforest into an ecologically impoverished savannah (Richardson et al.; Rockström et al. 102).

These current well-documented environmental challenges are interconnected with justice and equity. Human inequality is strongly linked with environmental degradation; from countries to counties, related pollution and health problems worsen with widening gaps between the rich and

the poor (Agyeman et al. 2002, 77). Extensive research shows that vulnerable, marginalized, or minoritized human and non-human systems with limited resources and power, in particular, are disproportionately affected by environmental threats while contributing little to the problem (Bullard 2018, 1; IPBES; IPCC 2023; Taylor 2014, 1). In contrast, a small group of exceedingly wealthy consumers and corporations is responsible for most related harms while gaining the best advantages (Davis et al.). The seminal Environmental Justice (EJ) movement began during the U.S. Civil Rights era in response to environmental racism (Bullard 1993, 7). It has evolved from grassroots activism to a global framework seeking to ensure equity and quality of life for all while preserving ecosystems and respecting planetary limits (Agyeman et al. 2002, 77; Rockström et al. 102; Schlosberg and Collins 359; UNDP 5).

Active Learning as a Tool for Environmental Justice

Education is a key strategy for equitably addressing the environmental polycrisis, especially through active, experiential, or inquiry-based learning techniques like the tours presented here. These approaches broaden curricula by embracing diverse viewpoints and engaging diverse students, including those from underserved communities, in critical thinking with potential to meet market demands and achieve professional aspirations (AAAS; Bialek and Botstein 788; Rotherham). Traditional large lecture classes or outdated laboratory experiences focused on rote memorization of entrenched and disconnected concepts often fail to adequately prepare students for the complex, multidisciplinary demands of the modern workplace, and may even disadvantage minorities. Many learners from increasingly diverse backgrounds are not provided with the cross-disciplinary skills or experiential opportunities needed to navigate these challenges.

Evidence-based approaches, such as hands-on, inquiry-based, active learning methods, improve learning outcomes by engaging students through activities, questions, and discussions rather than passive listening. Active learning emphasizes higher-order thinking and often involves group work, leading to improved student performance, reduced failure rates, and critical thinking (Bravo et al.; Freeman et al. 8410). Although they are not a panacea and may result in less content coverage, active learning creates excitement and engagement, enhancing diversity, equity, and inclusion in education.

The five green space tours presented here diversify pedagogical experiences, offering accessible, informative, and engaging resources for everyone, especially university students, outside of the classroom. Freely available to those in or visiting New York, these tours can also serve as models for student or faculty projects at other locations. Developed on user-friendly platforms, they can be customized to highlight environmental justice and green spaces around the world.

A Walk in the Park

Protected Areas, including urban parks, are essential tools for mitigating and adapting to habitat loss, pollution, climate change, overharvest, disease, and other environmental threats (Margules and Pressey 243; Naro-Maciel et al. 19). Urban parks offer a wide range of benefits, including access to the outdoors, exercise opportunities, improved mental and physical health, and contact with nature (Naeem et al.). While their objectives vary from providing recreation to conserving biodiversity, reserves often face significant design, implementation, and equity challenges, with a complicated legacy of gentrification, forced removal, and exclusion (Naro-Maciel et al.; Taylor 2016). Historically, reserves in the United States and beyond were often designed for affluent, white communities, systematically limiting or denying access to Indigenous peoples, other communities of color, and the working class (Taylor 2016, 1). Conservationist and Sierra Club Founder John Muir's vision of nature as a sanctuary separate from people, for example, contributed to the displacement of Indigenous communities and the creation of parks prioritizing pristine wilderness over inclusive access (Melley).

Green spaces in the globally significant city of New York embody many of these complexities, presenting both challenges and opportunities that resident or visiting learners can explore through the *A Walk in the Park for Environmental Justice* series. The collection is currently focused on Manhattan, chosen for its globally recognized, iconic, educational, and designated environmental justice green spaces, both terrestrial and aquatic, with plans to expand to the remaining boroughs of Brooklyn, the Bronx, Queens, and Staten Island.

The collection can readily be adapted for use beyond New York City, offering a valuable model for site-based learning and serving as a foundation for individual or group research projects.

Built on the user-friendly ArcGIS StoryMap platform with online tutorials (ESRI), site-specific

tours can also be created using free alternatives such as StoryMapJS (Knight Lab). Instructors and students, individually or collaboratively, can construct their own story map for any green space they choose.

Each visit starts with a “Before You Go” welcome section highlighting environmental justice in the context of climate change, biodiversity, and ecological health. The online tours, accessible on users’ devices, each take about an hour and include audio and visual information, as well as Reflections and wildlife identification opportunities. Visitors are asked to access their tour’s website, download two free wildlife identification apps, and read over other preparatory materials. They may view the map and address any accessibility accommodations through the links provided.

Over ten stops, participants travel from ancient Earth History, through the Indigenous era, colonization, enslavement, industrialization, immigration, park establishment, and into the present. Before starting, there is a Land Acknowledgement highlighting the native Lenape people and the legacies of displacement. This is followed by an overview of the site and the intersecting climate, biodiversity, ecological health, and environmental justice collapses, an explanation of ecocentrism versus anthropocentrism, and a set of Reflection questions to be considered along the tour (Figures 2, 3; Box 1). Tour materials are cited and referenced with a comprehensive scholarly bibliography that provides a strong basis for further exploration. By tracing the park’s layered past and present, the walks emphasize how environmental and social injustices intersect and invite reflection on the shared responsibility to build a more equitable and sustainable future.

Box 1. Reflection questions excerpted from [*A Walk in the Park for Environmental Justice:*](#)

[*Hudson River Park*](#) (Naro-Maciel and Sridhar).

- What did you observe along the Hudson River that was striking, interesting, previously unknown, or otherwise notable?
- How is environmental justice conceptualized in this tour? Do you know of other definitions? How are these ideas reflected at Hudson River Park?
- What are biodiversity, climate change, and ecological health? Why are they important yet in crisis? Who has been the most and least affected historically and into the present? How have these issues been manifested at Hudson River Park?
- Compare and contrast anthropocentrism and ecocentrism. Which philosophical approach do you embrace?
- Did the [Seek](#) and [Merlin](#) apps or other information help to identify organisms in the Park? Which ones? Describe their key characteristics.
- What are some strategies to combat threats to biodiversity, climate, ecological health, and environmental justice observed along the Hudson River? In what ways are these strategies equitable or just, or not? How can more justice be achieved in these efforts?
- What is your plan for a sustainable future?
- What questions do you have?

[*A Walk in the Park for Environmental Justice: Central Park*](#) (Naro-Maciel and Pomerance)

visits one of the best-known urban green spaces in the world, co-designed by the venerated Frederick Law Olmsted and once home to the famous zoo escapee Flaco the Eurasian Owl. The environmental injustices perpetrated on one-time Seneca Village residents forced to leave their

homes for park establishment (Heim), along with subsequent neighborhood gentrification, represent only some of the many quandaries covered while passing through Belvedere Castle, Shakespeare Garden, the Pinetum, Turtle Pond, and the Ramble bird-watching mecca (Box 2). This walk uncovers the park's deep geological and ecological history while also spotlighting its trees, butterflies, birds, and turtles, as well as the importance of biodiversity stewardship and its connections to a just sustainability. Central Park helps counteract urban heat islands and pollution, offering health benefits and underscoring the environmental justice need for equitable access to green space.

Box 2. The story of the African American Seneca Village community displaced to make space for Central Park in the 19th century, excerpted from [*A Walk in the Park for Environmental Justice: Central Park*](#) (Naro-Maciel and Pomerance).

STOP 4 - Seneca Village

Welcome to Seneca Village. The previous stop detailed the forced displacement of the Indigenous Lenape people, and here, a similar legacy is evident. Before construction of Central Park began in the 1850s, the current northwest area of the park, from roughly West 82nd to West 89th Street, was a thriving, predominantly African American community. The Village originated in 1825, when white landowner John Whitehead began selling his property in small lots. Two years later, slavery was abolished in New York City, and Seneca Village began to expand (Rosenzweig and Blackmar; Williams 42). The allure was clear – the Village was far uptown (for the time), away from the unhealthy conditions of the densely-packed downtown. But more importantly it provided a safe haven of sorts for Black New Yorkers, who were still heavily discriminated against despite the recent slavery abolition. In 1834, when anti-abolitionist rioters

attacked Black establishments and neighborhoods further downtown, the Seneca area was virtually unharmed (Kerber 28).

Compared to other African American neighborhoods in New York City, Seneca Village residents were well-off. By 1855 it is estimated that half of them owned private land, which in turn provided political power. The majority of adults were employed, and most children attended school. Furthermore, according to census data, residents tended to stay in the area, leading to a strong sense of community (Rosenzweig and Blackmar). Seneca Village also welcomed Irish immigrants coming to the United States to escape the Great Famine (so-called “Irish Potato Famine”), and the population peaked at 225-350 residents (Heim).

In the late 1840s, planning for a large park in Manhattan was underway. Originally, a site on the Upper East Side known as Jones’ Wood was considered. However, the wealthy Jones and Schermerhorn families lived in this area and successfully blocked it from being chosen for park development. The second location proposed, a massive area from 59th to 106th Street between 5th Avenue and 8th Avenue, came to fruition, as the New York State legislature assigned 775 acres of land for its construction (NY State). This included Seneca Village, whose inhabitants were incorrectly accused by the media of being “squatters” and “thieves” (Berman). The vitriol aimed at the majority-Black and minority-Irish residents helped spur public interest in creating the park. By 1857 the New York City government exercised the power of eminent domain, acquiring all property in Seneca Village, and then evicted the residents. Immediately after, the government razed the Village, leaving hardly any traces of the formerly thriving and stable community.

Central Park is integral to the very fabric of New York City. But for all its benefits, it is crucial to understand its complicated genesis. The uncomfortable truth is that this iconic green space was

built on one of the few areas that discriminated-against communities had to themselves. Seneca Village was basically forgotten for over a century after its destruction, and only recently has its history become a part of Central Park's official legacy.

[*A Walk in the Park for Environmental Justice: The High Line*](#) (Naro-Maciel) elaborates on these themes by exploring the once-abandoned freight rail, now transformed into a globally renowned, thriving, elevated park (Box 3). Shaped by human design and natural succession, the site integrates the environment with artistic and cultural expression. The High Line advances climate-resilience and biodiversity conservation with native plantings and porous surfaces. While the site celebrates urban biodiversity through curated plant life and pollinator habitats, the displacement of past human and nonhuman communities along the rail line must not be overlooked. The once-industrial zone that housed immigrant and working-class families has now been rebranded and erased in favor of sleek luxury developments. Throughout the visit participants are invited to consider the High Line's potential as a model, as well as the lessons it can draw from other sites.

Box 3. A history of High Line Park detailing historical erasure and inequity, excerpted from [*A Walk in the Park for Environmental Justice: The High Line*](#) (Naro-Maciel).

STOP 5 - Diller Von-Furstenberg Sundeck

On this short tour, one can only begin to consider the largely erased history of native and enslaved people in this area, and start to scratch the surface of environmental and ecological justice. This visit is intended to encourage critical thinking and further questioning and investigation in more depth than is possible on this limited tour. It may be deeply concerning to

think of these matters on the expensive sundeck funded by Diller-Von Furstenberg of all places, but, again, this can serve as a starting point for further reflection.

The Welikia Project Manahatta website shows what every Manhattan block looked like 400 years ago when Henry Hudson sailed up the river in 1609 on behalf of the Dutch. This was a completely different landscape then, covered by trees including oaks and maples, that transitioned softly through salt marshes or sandy beaches into the river, whose bed was covered by oyster reefs. Whales, porpoises, fish, beavers, bivalves, and even giant lobsters thrived in the rich waters. The people who lived, hunted, fished, and traded in this biologically diverse estuary were the Lenape.

Many more questions than answers remain about the controversial so-called acquisition of Manahatta from the Lenape by the Dutch in 1624. The infamous purported “sale” of the island for the equivalent of 60 guilders, or \$24, falls within a larger context of challenging environmental and social justice issues. The complexities, including very different cultural understandings of land ownership, gift-giving, sharing, rights of passage, gender roles, and sales, are described by Mary Kathryn Nagle of the Cherokee Nation in Stewart Huntington’s documentary *Back to Manahatta: The Return of the Lenape*, bearing witness to the erasure and exclusion of native peoples.

As noted by Robin Wall Kimmerer in her award-winning book *Braiding Sweet Grass*:

children, language, lands: almost everything was stripped away, stolen when you weren’t looking because you were trying to stay alive. In the face of such loss, one thing our people could not surrender was the meaning of land. In the settler’s mind, land was property, real estate, capital, or natural resources. But to our

people, it was everything: identity, the connection to our ancestors, the home of our nonhuman kinfolk, our pharmacy, our library, the source of all that sustained us. Our lands were where our responsibility to the world was enacted, sacred ground. It belonged to itself; it was a gift, not a commodity, so it could never be bought or sold. These are the meanings people took with them when they were forced from their ancient homelands to new places. (Kimmerer 17)

The ensuing deforestation, as well as land use change to farmland and later urban centers, building of a wall around the Dutch settlement of New Amsterdam, and coincident displacement of native peoples only expanded with the transfer of Manhattan to the British in 1674, who renamed the area New York.

Enslaved people were first brought here by the Dutch, and High Line Park is located only miles away from New York City's infamous slave market on Wall Street, which operated from 1711 to 1762. Only Charleston, South Carolina, had a greater percentage of slave-owning residents than the 42% of New Yorkers in 1730. Enslaved people, constituting 15 to 20% of the population, fundamentally built the city's physical structures, fueling its economy (Diouf). As the landscape transitioned to farming from fur trading, and the city began to form, human beings forcibly removed from Africa and the Caribbean worked on farms and in homes throughout the Hudson Valley.

After the American Revolution, in which slave owner George Washington commanded troops from nearby Battery Park, the census reported 21,000 enslaved people living in the city. Many established New Yorkers, including Alexander Hamilton, who died at nearby Jane Street after dueling with Vice President Aaron Burr in 1804, owned people. Although officially abolished

here in 1827, human beings remained enslaved, and New York featured prominently in the illegal slave trade.

From the 1700s to the mid-19th century, the Underground Railroad, led by Harriet Tubman, ran through nearby Greenwich Village, only blocks from the High Line, and opposition to the horrific practice of enslavement flourished. The Emancipation Proclamation was issued by President Abraham Lincoln in 1863, and slavery was officially abolished nationally through the 13th Amendment in 1865. However, as noted by Harry Belafonte in 2010, “although slavery may have been abolished, the crippling poison of racism still persists, and the struggle still continues” (Belafonte). How does this history tie in with environmental justice along the High Line today?

[*A Walk in the Park for Environmental Justice: Hudson River Park*](#) (Naro-Maciel and Sridhar) discusses the riverscape, which now protects this once pristine and biologically diverse estuary subjected to pollution, habitat loss, climate change, and more, in an ecocentric approach encompassing historically underrepresented human and non-human beings (Box 1). The Hudson River Park’s living shoreline, including vital ecosystems like the restored oyster reefs, plays a critical role in enhancing biodiversity and supporting ecological health. Oysters, which once thrived in the river, act as natural water purifiers by filtering pollutants, and their restoration helps protect the shore from erosion and storm surges. Alongside these restoration efforts, the park promotes sustainability through practices like composting, while offering green spaces for community well-being. Fostering a comprehensive approach to environmental and health equity, Pier 51 features a playground, Pier 46 hosts physical activity events, and there is ample room for outdoor running and walking. These initiatives contribute to the park’s goal of providing accessible and resilient spaces for all while helping mitigate the effects of climate change and biodiversity loss.

[*A Walk in the Park for Environmental Justice: East River Greenway*](#) (Sridhar and Naro-Maciel), located within an Environmental Justice area designated by the NYC Mayor’s Office (NYC MOCEJ 2024), discusses the real-world conflict between biodiversity conservation, human recreation, and climate mitigation (Box 4). The East River Park, originally planned in the 1930s by the infamous Parks Commissioner Robert Moses, has undergone multiple transformations, from a recreational area to an effort aimed at protecting Manhattan’s East Side from climate change-induced flooding. The ongoing \$1.45 billion East Side Coastal Resiliency Project focuses on flood protection and infrastructure improvements, while balancing ecological restoration, community needs, and environmental justice in a historically disadvantaged area, especially after the devastation of Hurricane Sandy in 2012. At Stuyvesant Cove, the community-driven transformation from a failed redevelopment project to a thriving park demonstrates the power of grassroots efforts, with initiatives like Solar One focusing on sustainability, ecological innovation, and food justice education. The tour also addresses the Project’s controversial redesign, which critics argue focused more on efficiency than meeting community needs, leading to environmental damage and frustration among local residents, especially those from low-income and BIPOC communities. This highlights the critical need for inclusive and sustainable development.

Box 4. An example of complexities and nuances in pursuit of climate, biodiversity, and ecological health, in the context of environmental justice, excerpted from [*A Walk in the Park for Environmental Justice: East River Greenway*](#) (Sridhar and Naro-Maciel).

STOP 1 - East Side Coastal Resiliency Sign

The notorious Power Broker, New York City Parks Commissioner Robert Moses (see Caro), first planned this waterfront recreational area in the 1930s, when it was implemented along with Franklin D. Roosevelt (FDR) Drive (NYC Parks). Given the prohibitive expense of acquiring real estate, new land was filled in from the river to make space for East River Park, which opened in 1939. The area continued to change, housing a once popular amphitheater that, along with many other city sites, succumbed to disrepair and vandalism during the societal turmoil of the 1970s. Revamped in the 1990s, new fields, tennis courts, and restrooms were added. Subsequently, spearheaded by then-Mayor Michael Bloomberg and PlanNYC (NYC MOCEJ), the city's sustainability blueprint, the transformation into an integrated greenway gained traction.

The Manhattan Waterfront Greenway, still partially in construction, is a ~52-kilometer network of open spaces and parks designed to encircle Manhattan Island mostly along the shoreline. The goal is to create an inclusive, high-quality, and welcoming and resilient green space for pedestrians, cyclists, joggers, and people with disabilities, as well as supporting wildlife (NYC EDC). Linking together different areas expands the waterfront experience for visitors while providing a more connected habitat for birds, plants, and other organisms, and better protecting against climate-related storm surges and flooding.

Within this loop, the ~15-kilometer East River Greenway runs along its namesake river from Battery Park to 125th Street, with a gap in midtown for the United Nations Plaza ("East River Greenway"). The area includes the East Side Coastal Resiliency Project, "a coastal protection initiative, jointly funded by the City of New York and the federal government, aimed at reducing flood risk due to coastal storms and sea level rise on Manhattan's East Side from East 25th Street

to Montgomery Street” (NYC ESCR). Triggered by the destruction wrought by Hurricane Sandy in 2012, and in accordance with 2050 sea level rise and wave projections, in addition to FEMA (Federal Emergency Management Agency) flood standards, this \$1.45 billion initiative involves elevating shore-line stretches by 2.5 - 3 meters (8 -10 feet), and installing flood gates, sea walls, and berms to protect against climate change (NYC ESCR; Roche).

The climate focus has at times clashed with other objectives, such as protecting biological diversity, providing recreational space, and advancing environmental justice (Kimmelman). The Lower East Side is a designated EJ area in which historically disadvantaged residents are more likely to experience negative impacts of pollution, climate change, and other environmental threats, with fewer resources to address them (NYC MOCEJ; NYC MOCEJ 2024). Over 110,000 people, including ~28,000 New York City Housing Authority (NYCHA) residents, live in the East Side Coastal Resiliency project site (Nelson). Although the program began with community engagement, early plans were largely abandoned in 2020. Reactions were mixed; climate resilience efforts were generally supported, but concerns were raised about unmet needs and the loss of a cherished park and thousands of trees. This case highlights how competing goals in protected areas can both align and conflict, offering a complex and compelling real-world example.

Centered on green programs at nearby New York University, *A Tour of Sustainable NYU* (Naro-Maciel) can be used as a model and adapted for other educational institutions and beyond. It follows a similar format to the *A Walk in the Park for Environmental Justice* collection and focuses on green roofs, energy efficiency, sustainable buildings, food, urban wildlife, and more. Throughout the tour, which covers Washington Square Park and surrounding (mostly) publicly accessible green spaces, students walk by community gardens growing food and native plants,

pass the energy-efficient CoGen plant at Mercer Plaza, view the new LEED Gold-certified Paulson building, and identify wildlife while considering questions about ecological and environmental justice in the context of sustainability (Box 5).

Box 5. A discussion of sustainability excerpted from [*A Tour of Sustainable NYU*](#) (Naro-Maciel).

STOP 1 - Washington Square Park

Washington Square is a public New York City park that does not belong to NYU. However, it does offer a great view of some of the tour sites, and many community members routinely visit and utilize this open space. This park and the gardens around the university offer documented benefits for human health and well-being. Further, parks and protected areas represent key strategies for conserving biodiversity or life on Earth. The current biodiversity crisis is estimated to endanger a million wildlife species by 2100, according to thousands of documented studies summarized by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). This not only disrupts intrinsically valuable biodiversity and ecological interactions but also human communities directly or indirectly relying on natural resources, such as for food, medicine, crop pollination, and nutrient cycling.

The impact of climate change, in which greenhouse gases from fossil fuels and land use change are warming the planet, further exacerbates this situation and constitutes a crisis of its own, as noted in decisive global reports by the Intergovernmental Panel on Climate Change (IPCC). Indeed, humanity has impacted the Earth to such an unprecedented extent that an entirely new geologic time has been debated: the Anthropocene, or Age of Humans (Head 229; Zalasiewicz et al.).

These major environmental crises raise the topic of sustainability and what it means. There are many definitions of this complex term. How would you explain sustainability? The United Nations Brundtland Commission defined it as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development).

However, in the UN “Declaration on the Right to Development” (UN 1986), Article 1 affirms that “the right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized.” This includes the right of peoples to “the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.” *The Universal Declaration of Human Rights* proclaims that all people are entitled to food, water, and health (UN 1948). In 2022, the human right to a “clean, healthy and sustainable environment” was declared (UNEP).

Even so, sustainable development can be difficult to achieve because of opposing environmental and monetary or social interests. To address this, the UN member states adopted the Sustainable Development Goals, depicted on the tour website, in their “2030 Agenda for Sustainable Development” (UN). The SDGs range from Goal 1 (No Poverty), through Goal 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 13 (Climate Action), to Goal 17 (Partnerships for the Goals). These 17 goals are aspirational and encompass social, environmental, and ecological justice. They are based on a more ecocentric approach to the planet, envisioning all human beings, regardless of race, gender identity, economic status, and other factors, as embedded in earth systems and cycles, and interconnected with other valued life forms. This contrasts with the anthropocentric perspectives that tend to place select people at

the top of a hierarchy, dominating and marginalizing other human and non-human beings and systems, severely limiting understanding of and exacerbating current environmental and social challenges (Kopnina 109; Washington et al.).

Theoretical Framework

The seminal Environmental Justice movement of the U.S. Civil Rights era emerged from protests against environmental racism, or “... any policy, practice or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups or communities based on race or colour” (Bullard 1037). Landmark demonstrations in Warren County, North Carolina, took place in 1982 against dumping toxic soil contaminated with polychlorinated biphenyls (PCBs) in landfills of predominantly minority neighborhoods (Bullard 2018). With input from diverse groups, including Black, Asian, Latino, and Indigenous community activists and leaders nationwide, and key leaders like Hazel M. Johnson and Robert Bullard, the 17 Principles of Environmental Justice were created in 1991 (Figure 2). These principles highlight the right of all people to live free from environmental harm and advocate for just, sustainable policies that respect all communities. They emphasize self-determination, participation in decisions, and the cessation of pollution and harmful practices, particularly emphasizing the needs of marginalized groups. The first Principle states that “Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction” (First National People of Color Environmental Leadership Summit; see Figure 2).

This pioneering EJ framework has expanded, from grassroots to academia, and from local to global levels, leading to rich conceptual and procedural variation within a “unifying theme across

race, class, gender, age, and geographic lines” (Bullard 2005, preface). On a global level, “environmental justice is conceptualized as the goal of promoting justice and accountability in environmental matters, focusing on the respect, protection and fulfillment of environmental rights, and the promotion of the environmental rule of law” (UNDP 5). Definitions may draw on the concept of justice as fairness (Rawls), or focus on even distributions of burdens and benefits stemming from environmental problems (Schlosberg). Distributive justice aims for fair resource allocation, while procedural justice ensures fair processes, recognition justice focuses on adequate acknowledgment, and restorative justice involves repairing harm, among other models (Kuehn; Schlosberg). Ecological justice extends consideration to all life forms, or Earth’s biodiversity, centering on the distribution of burdens and benefits between humans, other animals, plants, fungi, and even microbes (Low and Gleeson 133; Schlosberg). Within these broader categories, climate (Schlosberg and Collins), energy (Sovacool and Dworkin 435), food (Murray et al. 725), and health (Taylor 2014) injustice manifest disproportionate disadvantages in these areas. Indigenous environmental justice addresses the ensuing issues and injustices faced by Native Peoples, centering their worldviews, knowledge systems, laws, sovereignty, decolonization, and self-determination (Jarratt-Snider and Nielsen).

Rather than existing in isolation, these inequities often interact among themselves or with additional socio-economic aspects on various levels. Intersectional environmentalism (Thomas 3), sometimes thought of as the “offspring” of Environmental Justice and Climate Justice (Laurel and Baker), builds on the original concept of racial and sexual intersectionality (Crenshaw 139) by advocating for people and planet, particularly amplifying the voices of historically underserved communities. Intersectionality refers to the complex interconnections among

environmental and social issues, including feminism, LGBTQ+, and racism, leading to multiple emergent effects (Laurel and Baker).

Prevalent western colonial perspectives tend to anthropocentrically place select people at the top of a hierarchy isolated from and dominating other human and nonhuman beings (Kimmerer; Kopnina et al. 109; Washington et al.). In this human-centered approach, historically underrepresented people, nonhuman organisms, and their environments are primarily viewed as resources to be exploited for the benefit of dominant groups (Figure 3). In contrast to the western view, certain forms of Indigenous cosmology view humans as the youngest members of creation with much to learn from the wisdom of other species who have inhabited the Earth far longer (Kimmerer). More promising ecocentric approaches envision human communities as embedded in earth systems and cycles, equitably interconnected with other people and with organisms (Kimmerer; Kopnina et al. 109; Washington et al.). The unlimited growth and extraction model fostered by capitalism has led vulnerable, marginalized, or minoritized human and nonhuman systems with limited agency and power, thus they are disproportionately harmed.

These threats not only disrupt people relying on natural resources, such as for food, medicine, pollination, and nutrient cycling, but also ecological interactions and other life forms valued intrinsically, or for the direct or indirect services they provide. In the vastness of time and space, life is uniquely known on Earth, where an astounding array of organisms has evolved, from recently discovered microbes through fungi and plants, to beloved animals like koalas and whales. However, the ongoing crisis threatening life on Earth, or biodiversity, is conservatively estimated to endanger well over a million wildlife species by 2100, potentially leading to the Sixth Mass Extinction, the first such catastrophic event since the end of the dinosaurs 65 million years ago (Barnosky et al. 51; Ceballos and Ehrlich 1080; IPBES).

Climate change, a crisis in its own right, further interacts with and exacerbates existing challenges as greenhouse gases, primarily produced from burning fossil fuels and land use changes, are trapped in the atmosphere and heat the planet (IPCC 2022; IPCC 2023). The ensuing intensification of natural disasters and their effects on displacement, migration, and development disproportionately impact low- and middle-income countries, underserved communities in developed nations, and non-human systems. Regions already weakened by conflict are particularly vulnerable to linked disasters and public health threats, often sparked by disputes over increasingly rare natural resources such as water. Rising sea levels from melting glaciers and thermal expansion pose existential threats to small-island and other less-developed nations that contributed very little to climate change, disrupting livelihoods and displacing coastal populations. Known as “climate change’s evil twin”, ocean acidification from carbon dioxide, along with deoxygenation due to rising temperatures and harmful algal blooms, is decimating aquatic food webs and weakening their ecosystems (Kolbert 125). The warming climate also intensifies hazards such as stronger storms, food and water insecurity, droughts, fires, heat-related illnesses, and the spread of diseases (IPCC 2023; Manisalidis et al.).

The concept of ecological health espoused here centers on connections between human and environmental well-being (Talukder et al. 66). Biological sources of poor health, such as pathogen transmission to humans from other organisms (zoonosis), expand as people increasingly move around the globe, altering habitats and carrying vectors with them (Aguirre 315; Kolbert 148). The COVID-19 pandemic, for instance, stemmed from human interactions with coronavirus-bearing bats and rapidly spread around the highly interconnected planet (Lewis; Ullah et al.). Other ailments, such as those carried by mosquitoes, invade new populations as the climate warms (IPCC 2023). As discussed above, the disproportionate effects

on underserved populations of pollution, toxins, and other environmental degradations are well known.

Just sustainability “to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems,” is thus a key goal (Agyeman et al. 5). A sustainable society is a fair society, environmentally, economically, and socially, that recognizes interactions with non-human systems and maintains resources and populations into the future, within planetary boundaries (Agyeman et al. 5; Bullard et al.; Rockström et al. 102; World Commission on Environment and Development). For some, sustainable development is the next step of the Environmental Justice movement, closely connected to the concept of just sustainability (Agyeman et al. 5; Goldman). Sustainable development is built on the three pillars of society, environment, and economy, often referred to as people, planet, and profit. These areas form the basis for the United Nations Sustainable Development Goals, a global framework aiming to ensure balanced progress (UN). These materials draw on earlier declarations, such as the *Universal Declaration of Human Rights* (UN 1948), the *Declaration on the Right to Development* (UN 1986), and the more recently declared right to a “clean, healthy and sustainable environment” (UNEP).

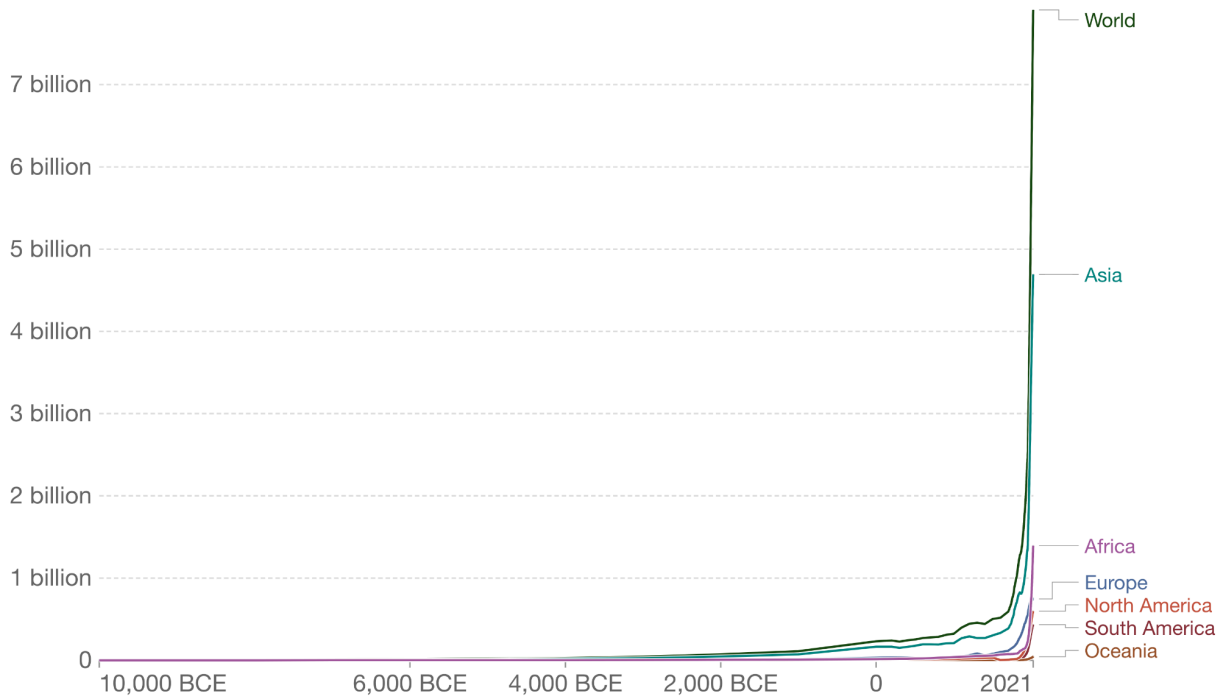
Concluding Remarks

The walking tours for environmental justice presented here offer active, engaging, and immersive ways to explore critical topics, whether by navigating New York City’s green spaces in person or by adapting the tours to other locations. The intersectional, multidisciplinary, and hands-on nature of these exercises makes them well-suited for a wide range of higher education contexts, usable individually or as a set. Built on user-friendly platforms, these tools enable

students, faculty, and other users, in New York City and beyond, to tailor them for any chosen situation. As interactive learning experiences, the tours adopt an ecocentric approach to addressing climate, biodiversity, and ecological health crises, while centering both human and nonhuman systems and justice. They uplift underrepresented communities, promote critical thinking and diverse perspectives, expand educational access, and encourage reflection on environmental justice and sustainability in the pursuit of a more equitable world. Take a walk in the park today!

Population, 10,000 BCE to 2021

Our World
in Data



Source: HYDE (2017); Gapminder (2022); UN (2022)

Note: Historical country data is shown based on today's geographical borders.

OurWorldInData.org/world-population-growth • CC BY

Fig. 1. Human population growth from 10,000 BCE (Our World in Data).

WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to ensure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

The Principles of Environmental Justice (EJ)

- 1) **Environmental Justice** affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
- 2) **Environmental Justice** demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
- 3) **Environmental Justice** mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
- 4) **Environmental Justice** calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.
- 5) **Environmental Justice** affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
- 6) **Environmental Justice** demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
- 7) **Environmental Justice** demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation.
- 8) **Environmental Justice** affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
- 9) **Environmental Justice** protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.
- 10) **Environmental Justice** considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.
- 11) **Environmental Justice** must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.
- 12) **Environmental Justice** affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.
- 13) **Environmental Justice** calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.
- 14) **Environmental Justice** opposes the destructive operations of multi-national corporations.
- 15) **Environmental Justice** opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.
- 16) **Environmental Justice** calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.
- 17) **Environmental Justice** requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to ensure the health of the natural world for present and future generations.

More info on environmental justice and environmental racism can be found online at www.ejnet.org/ej/

Delegates to the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington DC, drafted and adopted these 17 principles of Environmental Justice. Since then, the Principles have served as a defining document for the growing grassroots movement for environmental justice.

Fig. 2. The Principles of Environmental Justice (First National People of Color Environmental Leadership Summit).

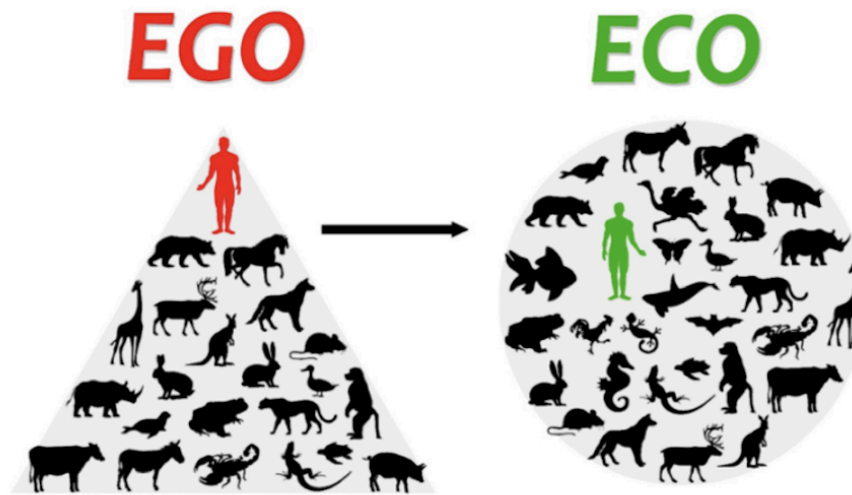


Fig. 3. Human-centered (in red) versus ecocentric (in green) approaches (Stibbe).

Eugenia (Genia) Naro-Maciel, Clinical Professor of Sustainability, Environmental Justice, and Health (SEJH) in Global Liberal Studies at New York University, is a graduate of Yale University. She earned her M.A. and Ph.D. degrees in Ecology, Evolution, and Environmental Biology from Columbia University, with a Certificate in Environmental Policy. Her research program focuses on genetic and genomic approaches for aquatic biodiversity and conservation, focusing on marine turtles. Naro-Maciel is also a committed practitioner of evidence-based teaching and learning strategies, and has co-authored numerous educational materials on protected areas and biodiversity conservation.

Works Cited

- AAAS. "Mission and History." *American Association for the Advancement of Science*, n.d., <https://www.aaas.org/mission>.
- Aguirre, Alonso. "Changing Patterns of Emerging Zoonotic Diseases in Wildlife, Domestic Animals, and Humans Linked to Biodiversity Loss and Globalization." *ILAR Journal*, vol. 58, no. 3, 2017. <https://academic.oup.com/ilarjournal/article/58/3/315/4745734>.
- Agyeman, Julian, Robert D. Bullard, and Bob Evans, editors. *Just Sustainabilities: Development in an Unequal World*. Earthscan, 2003.
- Agyeman, Julian, Robert D. Bullard, and Bob Evans. "Exploring the Nexus: Bringing Together Sustainability, Environmental Justice and Equity." *Space and Polity*, vol. 6, no. 1, 2002, pp. 77–90. <https://doi.org/10.1080/13562570220137907>.
- Back to Manahatta: The Return of the Lenape*. Directed by Stewart Huntington, produced by Chris Eyre, Lenape Center, 2021. *Vimeo*, vimeo.com/646162755.
- Barnosky, Anthony D., et al. "Has the Earth's Sixth Mass Extinction Already Arrived?" *Nature*, vol. 471, no. 7336, 2011, pp. 51–57. <https://doi.org/10.1038/nature09678>.
- Belafonte, Harry. "14 Inspiring Quotes about Justice and Equality from Civil Rights Icons Past and Present." *Innocence Project*, 19 February 2021, <https://innocenceproject.org/news/malcolm-x-john-lewis-black-history-month-quotes-civil-rights/>.
- Berman, Judith S. *Central Park*. Barnes & Noble Books, 2003.

Bialek, William, and David Botstein. “Introductory Science and Mathematics Education for 21st-Century Biologists.” *Science*, vol. 303, no. 5659, 2004, pp. 788–790.

<https://doi.org/10.1126/science.1095480>.

Bravo, Andrea, et al. “Teaching for Higher Levels of Thinking: Developing Quantitative and Analytical Skills in Environmental Science Courses.” *Ecosphere*, vol. 7, no. 4, 2016.

<https://doi.org/10.1002/ecs2.1290>.

Bullard, Robert D., editor. *Confronting Environmental Racism: Voices from the Grassroots*. South End Press, 1993.

Bullard, Robert D. “Environmental Racism and ‘Invisible’ Communities.” *West Virginia Law Review*, vol. 96, no. 4, 1994, pp. 1037–60. *West Virginia University College of Law Research Repository*, <https://researchrepository.wvu.edu/wvlr/vol96/iss4/9>.

Bullard, Robert D. *Dumping in Dixie: Race, Class, and Environmental Quality*. 3rd ed., Routledge, 2018.

Bullard, Robert D. “Environmental Justice – Once a Footnote, Now a Headline.” *Harvard Environmental Law Review*, vol. 45, 2021, p. 244.
<https://journals.law.harvard.edu/elr/wp-content/uploads/sites/79/2021/07/45-2-Bullard.pdf>

Bullard, Robert D. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. Sierra Club Books, 2005.

- Bullard, Robert D., Glenn S. Johnson, and Angel O. Torres. *Environmental Health and Racial Equity in the United States: Building Environmentally Just, Sustainable, and Livable Communities*. American Public Health Association, 2011.
- Caro, Robert A. *The Power Broker: Robert Moses and the Fall of New York*. Knopf Doubleday Publishing Group, 1974.
- Ceballos, Gerardo, and Paul R. Ehrlich. “The Misunderstood Sixth Mass Extinction.” *Science*, vol. 360, no. 6393, 2018, pp. 1080–1081. <https://doi.org/10.1126/science.aau0191>.
- Crenshaw, Kimberlé. “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics.” *University of Chicago Legal Forum*, vol. 1989, no. 1, 1989, pp. 139–167.
- Davis, John, et al. “Anthropocene, Capitalocene, ... Plantationocene?: A Manifesto for Ecological Justice in an Age of Global Crises.” *Geography Compass*, vol. 13, no. 5, 2019, e12438. <https://doi.org/10.1111/gec3.12438>.
- Diouf, Sylviane A. “New York City’s Slave Market.” *New York Public Library*, 29 June 2015, <https://www.nypl.org/blog/2015/06/29/slave-market>.
- Ehrlich, Paul R., and John P. Holdren. “Impact of Population Growth: Complacency Concerning This Component of Man’s Predicament Is Unjustified and Counterproductive.” *Science*, vol. 171, no. 3977, 1971, pp. 1212–1217. <https://doi.org/10.1126/science.171.3977.1212>.
- ESRI. *ArcGIS StoryMaps*. Environmental Systems Research Institute, n.d., <https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/overview>.

- First National People of Color Environmental Leadership Summit. *Principles of Environmental Justice*. 24–27 October 1991, Washington, DC., <https://www.ejnet.org/ej/principles.html>.
- Freeman, Scott, et al. “Active Learning Increases Student Performance in Science, Engineering, and Mathematics.” *Proceedings of the National Academy of Sciences*, vol. 111, no. 23, 2014, pp. 8410–8415. <https://doi.org/10.1073/pnas.1319030111>.
- GFN. *Ecological Footprint*. Global Footprint Network, n.d., <https://www.footprintnetwork.org/our-work/ecological-footprint/>.
- Goldman, Benjamin A. *Not Just Prosperity: Achieving Sustainability With Environmental Justice*. National Wildlife Federation, Corporate Conservation Council, 1993.
- Head, Martin J., et al. “The Anthropocene Is a Prospective Epoch/Series, Not a Geological Event.” *Episodes*, vol. 46, no. 2, 2023, pp. 229–238. <https://doi.org/10.18814/epiiugs/2022/022025>.
- Heim, Gary. “Before Central Park Came Seneca Village, Black Community Hidden in the Heart of Manhattan.” *The Wilderness Society*, 2023, <https://www.wilderness.org/articles/blog/central-park-came-seneca-village-black-community-hidden-heart-manhattan>.
- Heinberg, Richard. “From Climate Crisis to Polycrisis.” *World Literature Today*, vol. 98, no. 2, 2024, pp. 32–36. <https://doi.org/10.1353/wlt.2024.a920893>.

Holdren, John P. “Brief History of IPAT.” *The Journal of Population and Sustainability*, vol. 2, no. 2, 2021, pp. 66–74. <https://doi.org/10.3197/jps.2018.2.2.66>.

IPBES. *Global Assessment Report on Biodiversity and Ecosystem Services*. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019, <https://doi.org/10.5281/ZENODO.3831673>.

IPCC. *Global Warming of 1.5°C*. Intergovernmental Panel on Climate Change, 2022, <https://doi.org/10.1017/9781009157940>.

IPCC. *AR6 Synthesis Report: Climate Change 2023*. Intergovernmental Panel on Climate Change, 2023, <https://www.ipcc.ch/report/ar6/syr/>.

Jarratt-Snider, Karen, and Marianne O. Nielsen, editors. *Indigenous Environmental Justice*. University of Arizona Press, 2020. <https://doi.org/10.2307/j.ctv10qqwrm>.

Kerber, Linda K. “Abolitionists and Amalgamators: The New York City Race Riots of 1834.” *New York History*, vol. 48, no. 1, 1967, pp. 28–39. <https://www.jstor.org/stable/23162902>.

Kimmelman, Michael. “What Does It Mean to Save a Neighborhood?” *The New York Times*, 2 December 2021, <https://www.nytimes.com/2021/12/02/us/hurricane-sandy-lower-manhattan-nyc.html>.

Kimmerer, Robin Wall. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Milkweed Editions, 2020.

Knight Lab. *StoryMapJS*. Knight Lab, n.d., <https://storymap.knightlab.com>.

Kolbert, Elizabeth. *The Sixth Extinction: An Unnatural History*. First edition, Picador, Henry Holt and Company, 2015.

Kopnina, Helena, Hayley Washington, Brendon Taylor, and James J. Piccolo.

“Anthropocentrism: More than Just a Misunderstood Problem.” *Journal of Agricultural and Environmental Ethics*, vol. 31, no. 1, 2018, pp. 109–127.

<https://doi.org/10.1007/s10806-018-9711-1>.

Kuehn, Robert R. “Environmental Justice.” *Routledge International Handbook of Social Justice*, Routledge, 2014.

Laurel, Amanda M., and Kamrin Baker. “What Is Intersectional Environmentalism?” *The Good Newspaper*, 2022,

<https://www.goodgoodgood.co/articles/what-is-intersectional-environmentalism>.

Lewis, Tom. “Eight Persistent COVID-19 Myths and Why People Believe Them.” *Scientific American*, 2020,

<https://www.scientificamerican.com/article/eight-persistent-covid-19-myths-and-why-people-believe-them/>.

Low, Nicholas, and Brendan Gleeson. *Justice, Society and Nature: An Exploration of Political Ecology*. Routledge, 1998.

Manisalidis, Ioannis, et al. “Environmental and Health Impacts of Air Pollution: A Review.”

Frontiers in Public Health, vol. 8, 2020, 14. <https://doi.org/10.3389/fpubh.2020.00014>.

Margules, Chris R., and Robert L. Pressey. “Systematic Conservation Planning.” *Nature*, vol. 405, no. 6783, 2000, pp. 243–253. <https://doi.org/10.1038/35012251>.

McNeill, John R., and Peter Engelke. *The Great Acceleration: An Environmental History of the Anthropocene Since 1945*. The Belknap Press of Harvard University Press, 2014.

Melley, Brian. “Sierra Club Calls Out Founder John Muir for Racist Views.” *PBS News*, 22 July 2020, <https://www.pbs.org/newshour/nation/sierra-club-calls-out-founder-john-muir-for-racist-views>.

Murray, Sandra, Fred Gale, David Adams, and Lisa Dalton. “A Scoping Review of the Conceptualisations of Food Justice.” *Public Health Nutrition*, vol. 26, no. 4, 2023, pp. 725–737. <https://doi.org/10.1017/S1368980023000101>.

Naeem, Shahid, et al. “Biodiversity and Human Well-Being: An Essential Link for Sustainable Development.” *Proceedings of the Royal Society B: Biological Sciences*, vol. 283, no. 1844, 2016, 20162091. <https://doi.org/10.1098/rspb.2016.2091>.

Naro-Maciel, Eugenia. *A Walk in the Park for Environmental Justice: The High Line*. NYU Liberal Studies, 2023. Story Map design by Sneha Sridhar. *ArcGIS StoryMaps*, <https://storymaps.arcgis.com/stories/672269a0c4be45109ea7dd777a0b54fa>. Accessed 5 January 2026.

Naro-Maciel, Eugenia. *A Tour of Sustainable NYU*. NYU Liberal Studies, 2023. Story Map design by Sneha Sridhar. *ArcGIS StoryMaps*, <https://storymaps.arcgis.com/stories/1c923c0e9c424b0287370d7ed6b3f052>. Accessed 5 January 2026.

Naro-Maciel, Eugenia, and Henry Pomerance. *A Walk in the Park for Environmental Justice: Central Park*. NYU Liberal Studies, 2024. *ArcGIS StoryMaps*, <https://storymaps.arcgis.com/collections/696b773a186449d59b5174865841dc84?item=1>. Accessed 5 January 2026.

Naro-Maciel, Eugenia, and Sneha Sridhar. *A Walk in the Park for Environmental Justice: Hudson River*. NYU Liberal Studies, 2024. *ArcGIS StoryMaps*, <https://storymaps.arcgis.com/stories/ba928dd6eff749dd8ec973a721bd14d3>. Accessed 5 January 2026.

Naro-Maciel, Eugenia, Madhu Rao, and Eleanor J. Sterling. “Protected Areas and Biodiversity Conservation I: Reserve Planning and Design.” *Lessons in Conservation*, vol. 2, 2009, pp. 19–49.

Nelson, Aaron. “The Dilemma behind the East Side Coastal Resiliency Project.” *Epicenter NYC*, 5 July 2022, <https://epicenter-nyc.com/the-dilemma-behind-east-side-coastal-resiliency-project/>.

NY State. *Documents of the Assembly of the State of New York*, vol. 29, 134th Sess., New York State Legislature, 1911, <https://www.amazon.com/Documents-Assembly-State-York-134th/dp/B0BWFD7C7SB>.

NYC Parks. *John V. Lindsay East River Park Highlights*. New York City Parks Department, n.d., <https://www.nycgovparks.org/parks/east-river-park/history>.

NYC EDC. *Manhattan Waterfront Greenway*. New York City Economic Development Corporation, n.d., <https://edc.nyc/project/manhattan-waterfront-greenway>.

NYC MOCEJ. *EJNYC: A Study of Environmental Justice in NYC*. New York City Mayor's Office of Climate and Environmental Justice, 2024.

NYC MOCEJ. *EJNYC Mapping Tool*. New York City Mayor's Office of Climate and Environmental Justice, 16 November 2024.

NYC MOCEJ. *PlaNYC: Getting Sustainability Done*. New York City Mayor's Office of Climate and Environmental Justice, n.d.

Our World in Data. "Human Population Growth from 10,000 BCE." *Our World in Data*, n.d., <https://ourworldindata.org>. Accessed 5 January 2026.

Rawls, John. *Justice as Fairness: A Restatement*. 2nd ed., Belknap Press, 2001.

Richardson, Kate, et al. "Earth Beyond Six of Nine Planetary Boundaries." *Science Advances*, vol. 9, no. 37, 2023, eadh2458. <https://doi.org/10.1126/sciadv.adh2458>.

Roche, Daniel J. "New York City's East Side Coastal Resiliency Project Hits Halfway Mark." *The Architect's Newspaper*, 13 November 2024, <https://www.archpaper.com/2024/11/new-york-city-east-side-coastal-resiliency-project/>.

Rockström, Johan, et al. "Safe and Just Earth System Boundaries." *Nature*, vol. 619, no. 7968, 2023, pp. 102–111. <https://doi.org/10.1038/s41586-023-06083-8>.

Rosenzweig, Roy, and Elizabeth Blackmar. *The Park and the People: A History of Central Park*. Cornell University Press, 1998.

Rotherham, Andrew J. “The Next Great Resource Shortage: U.S. Scientists.” *Time*, 2011, <https://time.com/archive/6917408/the-next-great-resource-shortage-u-s-scientists/>.

Schlosberg, David. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford University Press, 2007.

Schlosberg, David, and Lisette B. Collins. “From Environmental to Climate Justice: Climate Change and the Discourse of Environmental Justice.” *WIREs Climate Change*, vol. 5, no. 3, 2014. <https://doi.org/10.1002/wcc.275>.

Sovacool, Benjamin K., and Michael H. Dworkin. “Energy Justice: Conceptual Insights and Practical Applications.” *Applied Energy*, vol. 142, 2015, pp. 435–444. <https://doi.org/10.1016/j.apenergy.2015.01.002>.

Sridhar, Sneha, and Eugenia Naro-Maciel. *A Walk in the Park for Environmental Justice: East River Greenway*. NYU Liberal Studies, 2025. *ArcGIS StoryMaps*, <https://storymaps.arcgis.com/stories/c6ed6a4ce1654875b89fa631a357213e>. Accessed 5 January 2026.

Stibbe, Arran. *Ecolinguistics: Language, Ecology and the Stories We Live By*. 2nd ed., Routledge, 2021.

Talukder, Byomkesh, Nilanjana Ganguli, Eunice Choi, Mohammadali Tofighi, Gary W. Vanloon, James Orbinski. “Exploring the Nexus: Comparing and Aligning Planetary Health, One

Health, and EcoHealth.” *Global Transitions*, vol. 6, 2024, pp. 66–75.

<https://doi.org/10.1016/j.glt.2023.12.002>.

Taylor, Dorceta E. *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*. New York University Press, 2014.

Taylor, Dorceta E. *The Rise of the American Conservation Movement: Power, Privilege, and Environmental Protection*. Duke University Press, 2016.

<https://doi.org/10.1215/9780822373971>.

The Welikia Project. *The Welikia Project*. n.d., <https://welikia.org/>.

Thomas, Leah. *The Intersectional Environmentalist: How to Dismantle Systems of Oppression to Protect People + Planet*. First ed., Voracious/Little, Brown and Company, 2022.

Ullah, Irfan, Kiran S. Khan, Muhammad J. Tahir, A. Ahmed, and Harapan Harapan. “Myths and Conspiracy Theories on Vaccines and COVID-19: Potential Effect on Global Vaccine Refusals.” *Vacunas*, 2021, S1576988721000108.

<https://doi.org/10.1016/j.vacun.2021.01.001>.

UN. *The 17 Sustainable Development Goals*. United Nations, n.d., <https://sdgs.un.org/goals>.

UN. *Universal Declaration of Human Rights*. United Nations Office of the High Commissioner for Human Rights, 1948,

<https://www.ohchr.org/en/universal-declaration-of-human-rights>.

UN. *Declaration on the Right to Development*. United Nations Office of the High Commissioner for Human Rights, 1986,

<https://www.ohchr.org/en/instruments-mechanisms/instruments/declaration-right-development>.

UNDP. *Environmental Justice: Securing Our Right to a Clean, Healthy and Sustainable Environment*. United Nations Development Programme, 2022,

<https://www.undp.org/publications/environmental-justice-securing-our-right-clean-healthy-and-sustainable-environment>.

UNEP. “In Historic Move, UN Declares Healthy Environment a Human Right.” United Nations Environment Programme, 28 July 2022,

<https://www.unep.org/news-and-stories/story/historic-move-un-declares-healthy-environment-human-right>.

Washington, Heather, Brendon Taylor, Helena Kopnina, Paul Cryer, and James J. Piccolo. “Why Ecocentrism Is the Key Pathway to Sustainability.” Millennium Alliance for Humanity and the Biosphere, 4 July 2017, <https://mahb.stanford.edu/blog/statement-ecocentrism/>.

Williams, Keith. “Uncovering the Ruins of an Early Black Settlement in New York.” *The New York Times*, 7 February 2018,

<https://www.nytimes.com/2018/02/07/nyregion/uncovering-the-ruins-of-new-yorks-first-free-black-settlement.html>.

World Commission on Environment and Development. *Our Common Future: Report of the World Commission on Environment and Development*. United Nations, 1987: *Our*

Common Future. United Nations, n.d.,

<https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.

Zalasiewicz, Jan A., et al. “The Anthropocene: Comparing Its Meaning in Geology (Chronostratigraphy) with Conceptual Approaches Arising in Other Disciplines.” *Earth’s Future*, vol. 9, no. 3, Mar. 2021, article e2020EF001896. American Geophysical Union (AGU), <https://doi.org/10.1029/2020EF001896>.