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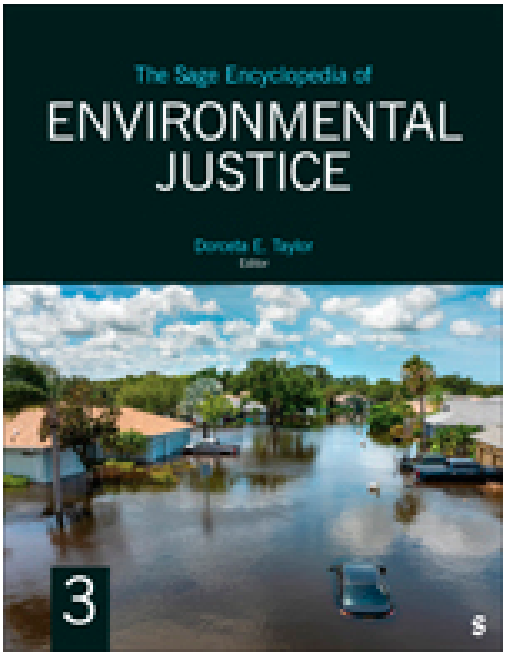

Sage Reference

The Sage Encyclopedia of Environmental Justice

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Human–Wildlife Interactions

Human–wildlife interactions (HWI) describe relationships between humans and undomesticated animal species. HWIs are influenced by social and ecological factors, such as the distribution of green space and the growth of ecotourism. Negative HWIs, referred to as human–wildlife conflict (HWC), can often overburden marginalized communities, such as low-income groups and ethnoracial minorities. While the field of HWIs has explored the drivers of these conflicts, it has rarely adopted a justice lens to understand the root causes of HWC. This entry sheds light on the potential of environmental justice (EJ), a field that critically examines the environment as a landscape of power struggles, to explore the factors that underpin HWI in urban and nonurban contexts. The entry also describes how systems of oppression and systemic biases contribute to negative and a lack of positive HWI for specific human populations, concluding with a forward-looking perspective on the integration of EJ and the field of HWIs, highlighting its potential to significantly impact scholarship and wildlife management.

Positive and Negative HWIs

HWIs can be positive (e.g., tourism and birdwatching), negative (e.g., livestock or pets lost to predation), or neutral (e.g., a pigeon [*Columba livia*] is unphased by passing humans on a sidewalk), and the character and strength of these interactions can change over time. HWIs are largely driven by social components, including risk perceptions and attitudes toward wildlife. Positive HWIs, often overlooked in the discourse, refer to the benefits that wildlife can bring to people. These benefits have been the focus of research and practice related to ecosystem services or nature's contributions to people. They include direct benefits to people's psychological and physical well-being (e.g., bird song may relieve stress), human livelihoods (e.g., hunting), and cultural practices (e.g., harvesting fur for traditional garments). Negative HWIs are typically framed as HWCs, in which humans, infrastructure, or interests are adversely affected by wildlife or vice versa. HWC also includes poaching and illegal trading. Neutral HWIs describe interactions in which neither humans nor wildlife bears any negative consequences when interacting, such as when a bird forages in the grass near people in a park. To change the nature and intensity of HWIs, societies may adopt management decisions to select for or against particular behaviors, which can vary by species.

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Spatial and Social Dimensions

HWIs are driven by the overlap of humans, wildlife, and resources (e.g., prey and fertile land). Historical actions, systemic biases, and systems of oppression drive the distribution and variation of resources in urban and nonurban landscapes, as well as the communities that have access to said lands. Figure 1 illustrates how these drivers subject certain human communities to interface more (or less) with particular wildlife and environments, leading to different HWIs.

> The diagram presents a framework linking systemic biases, social systems, environmental conditions, and human wildlife interactions. At the top, Systemic Biases includes racism, classism, patriarchy, and white supremacy. Below it, Systems of Oppression includes segregation, neo colonialism, governance, racialization, and redlining. These influence two connected groups of factors: Environmental Injustices, including pollution, degraded landscapes, climate change, green space inequity, and Social Injustices, including wealth disparities, housing quality, access to healthcare, and unequal political power. Arrows connect these factors to Human wildlife resource spatial arrangement, human and wildlife behavior, and Societal values, experiences, attitudes, and perceptions. These relationships lead to Human wildlife Interaction Type, categorized as Positive, Neutral, or Negative. Multiple arrows indicate feedback and interactions among all levels of the framework

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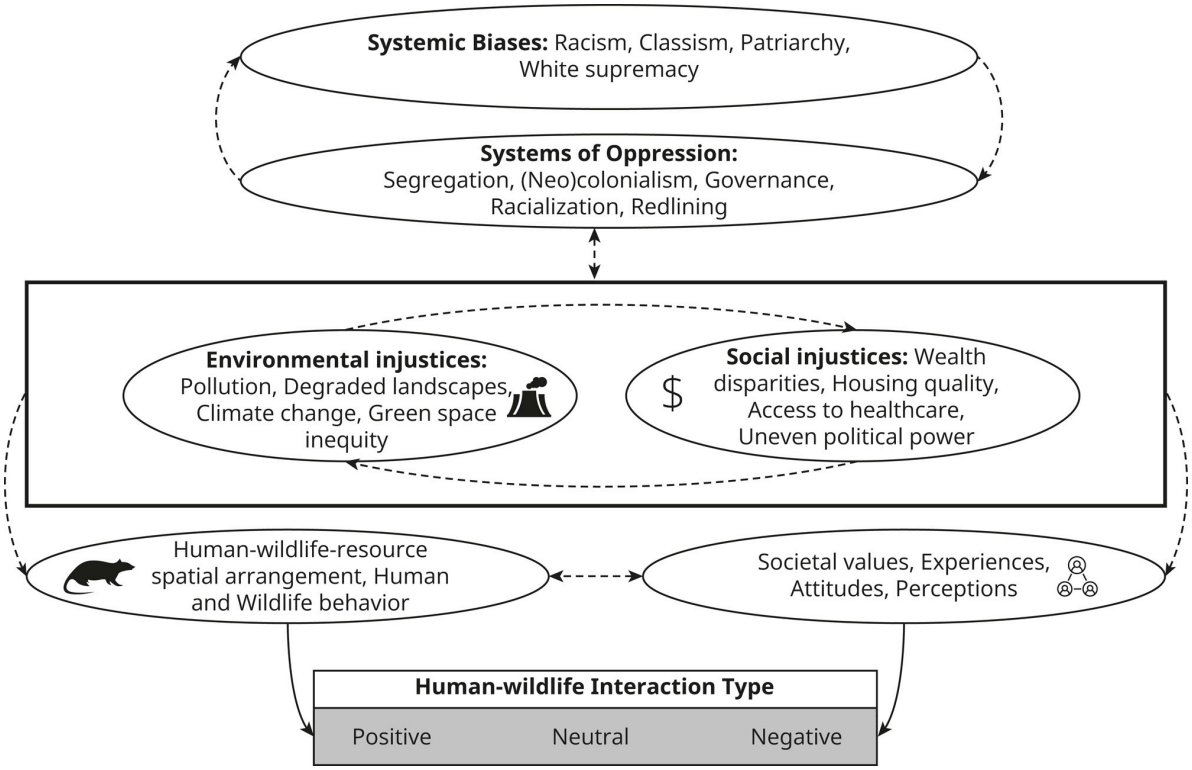
Figure 1 Conceptual Figure of How Human–Wildlife Interactions Manifest. Note: A conceptual figure highlighting some of the connections between systemic biases and systems of oppression to social and environmental injustices that lead to inequitable human–wildlife interactions among humans. This serves as a high-level overview and is not meant to encompass all the systemic biases, systems of oppression, or injustices faced by communities worldwide.



Although urban wildlife can exhibit conflict-prone behaviors, such as reduced fear of humans, HWC can be localized within a city due to societal inequity. For instance, inequitable wealth accumulation, development, racialized policies, and more push marginalized people into disenfranchised urban neighborhoods. In these neighborhoods, more negative interactions, including potential exposure to disease, can occur with species categorized as pests, such as rats and mosquitoes, due to inadequate housing and drainage infrastructure as well as poorer municipal services. Positive HWIs can also be dampened in cities because of disparities in access to biodiversity and greenspace, where neighborhoods composed of marginalized ethnoracial groups can experience less access to parks and natural areas. Conversely, access to greenspaces and biodiversity may lead to higher instances of HWC, such as attacks on pets, due to the occupancy of carnivores (e.g.,

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coyotes [*Canis latrans*]). Beyond urban areas, social systems of power and hierarchy (e.g., capitalism and governance) can lead to actions that have adverse effects on both humans and wildlife. For example, forest management practices focused on extraction rather than stewardship (e.g., monoculture tree farms and mining) can rupture and displace human communities, particularly Indigenous communities, while simultaneously reducing the habitat available to wildlife by clearing trees and reducing forest diversity. While not a comprehensive list, such actions can lead to altered human–environment connections, which may create or exacerbate existing negative HWIs and reduce positive HWIs. This is especially true for cultures that interact with the environment in a mutually beneficial manner.

Role of Climate Change

Climate change continues to alter land and seascapes through changes in precipitation (e.g., drought and flooding), elevated ocean temperatures, wildfires, and hurricanes. In turn, resources available to both wildlife and people are shifting, changing how both navigate the world. For example, as a consequence of climate change, sea ice in the Arctic is scarce, which has driven polar bears (*Ursus maritimus*) to hunt in areas closer to people, leading to higher property damage and dangerous encounters. In South Sudan, farmers increasingly guide their cattle to rivers to deal with elevated temperatures, increasing the frequency of Nile crocodile (*Crocodylus niloticus*) attacks on both humans and cattle. Moreover, as wildfires increase, wildlife, including deer, coyotes, and mountain lions, may be pushed toward the periphery of urban societies until the habitat regenerates. In these instances, socioeconomic barriers to access wildlife management tools, such as deterrents, may leave some residents ill-equipped to deal with the repercussions of these encounters.

Structural Racism and Lack of Positive HWIs

Unjust policies, governance, and economic systems may contribute to fewer positive HWIs among marginalized peoples. For example, historical redlining—a federal policy in the United States in the 1930s and 1940s that led to segregation and disinvestment into mostly Black neighborhoods—shapes contemporary wildlife biodiversity in California, one of the largest states in the United States, via reductions in species richness across multiple taxa (e.g., mammals, birds, and insects), as well as altered species assemblages. Since fewer unique species may inhabit some Black, Hispanic, and low-income communities, residents have fewer op-

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portunities to interact with more diverse wildlife. This may have downstream consequences on human well-beings because access to biodiversity is known to impact mental health. Importantly, however, attitudes and values for species vary widely among individuals and cultures, and some people form positive relationships with human-commensal species (those that cohabitate with people, such as crows and pigeons), even in areas with little biodiversity.

Depopulating Landscapes to Create Nature Reserves

Biodiversity conservation managers often create nature reservations and national parks free from human inhabitants. For example, the Sonaha people, indigenous to the lower Karnali River delta in Midwestern lowland Nepal, were forcibly prevented by armed guards from accessing their traditional territories after the creation of Bardia National Park in the 1970s. Though the Sonaha depend on this territory for fishing and accessing forest resources, these practices were disregarded in the creation of the national park. This conceptualization of conservation often leads to the displacement of Indigenous Peoples from their historic homes and the separation of people from wildlife, causing cultural, emotional, and environmental harm.

Researchers have termed these phenomena, in which people are deprived of positive interactions with wildlife (e.g., fishing and birdwatching) in their everyday lives, the *extinction of experience*. A prime example can be observed in Cape Town, South Africa. Cape Town is part of the Indigenous homelands of the San and Khoekhoe Indigenous Peoples, who have lived sustainably in the region for thousands of years as hunter–gatherers and agropastoralists, respectively. Cape Town is composed of many ethnic groups defined by the country, including Black African, Indian, and Colored. Predominantly White neighborhoods have sixfold higher income, 11.7% greater tree cover, 8.9% higher vegetation greenness, and live 700 meters closer to a public park than areas with predominantly Black African, Indian, and Colored residents. Ecologically, Cape Town is situated in the Cape Floristic Region, which is the smallest and most diverse of the Earth's six floral kingdoms and holds 44% of the flora of the subcontinent, with about 9,000 plant species located in just 90,000 km^2. However, this biodiversity is much more accessible to Cape Town's White and wealthy population than its non-White residents.

Yet, even in the face of oppressive social structures, acts of socioecological resistance are evident. Though most of the remaining *fynbos* ecosystem, a highly diverse vegetation endemic to the Western Cape, occurs near wealthier, White communities in Cape Town, at the Bottom Road Sanctuary, a grassroots community

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effort has brought the potential for positive HWIs to a low-income, Neighborhood of Color. Here, a local baker implored his neighbors not to build security walls between their properties (a common practice among house owners in Cape Town) but instead work with nature conservators to create a community garden and rehabilitate *fynbos*. Leveraging the city's interest in *fynbos* restoration, residents of Bottom Road, Grassy Park, Cape Town, convinced the city to support lakeshore restoration on a degraded strip of *Rondevlei* (Lake Ronde). Through negotiations and combining property from six residents and the city, the collective signed off on a small ecological restoration project. The community park included walkways, park benches, and places for barbecues; it became a mixed-use space for humans and nonhumans.

Uneven Negative HWIs

Proximity to food sources and viable habitats for wildlife influence how HWIs unfold. Hence, certain species may be localized to, or more abundant in, different areas. For example, residents of neighborhoods near garbage dumps may interact more frequently with scavenging species. In addition, lower socioeconomic neighborhoods have been found to have more diverse and abundant mosquito communities due to more viable habitats (e.g., poor drainage, warmer temperatures, and poor road infrastructure), higher rat populations, and the likelihood of zoonotic infection. Research has shown that residents of such communities experience adverse health as well as increased exposure to zoonotic pathogens via disease vectors, such as rats, mosquitoes, and ticks. Because of racialized and inequitable public health care, illnesses arising from disease vectors, such as Lyme disease from ticks, go undiagnosed or misdiagnosed.

Urban rodents cost cities billions of dollars worldwide from food loss and infrastructure damage. The coincidence of these conditions often occurs in low-income areas, in which poor housing conditions allow rodents to enter lesser quality infrastructure, poor municipal services allow food waste to collect, and less habitat is available to support predators, such as birds of prey. For instance, neighborhood characteristics such as being low-income and having a high percentage of rental units, vacant land, and uncontained trash have all been documented to be associated with an elevated rat abundance. The uneven distribution of rat densities holds environmental justice implications, as humans living in infested areas often feel a loss of control and cohesion with their surroundings, as well as diminished mental health.

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Charismatic Megafauna

Because most people live in urban areas, it is easy to construct false narratives that portray nonurban spaces as having no negative interactions and fewer HWIs overall. However, wildlands and the animals found therein are a large catalyst of HWC globally. Additionally, because of the relative abundance of space, biodiversity, and habitat types, nonurban spaces support charismatic megafauna (e.g., lions and crocodiles), creating unique conflicts for nonurban residents.

Megafauna, such as tigers and wolves, play an outsized role in reintroduction efforts and are often deemed to have positive impacts by their conservation proponents. Yet, these can produce unequal outcomes among people. For instance, the positive or neutral interactions in wildlands are often only reaped by wealthy individuals able to pay for curated experiences and travel to those destinations, while conflicts mostly impact poor, rural communities. This dynamic is evident in the United States, where the establishment of protected areas eroded the coexistence of large mammals and Indigenous Peoples and settlers, limited subsistence hunting and gathering, curtailed grazing on communal lands, and consequently, reduced neutral and positive interactions.

Conservation and reintroduction efforts disproportionately affecting marginalized populations also occur in regions such as rural India. A lack of municipal services such as potable water leads to higher rates of carnivore attacks, as people and carnivores are funneled toward the same water sources. Moreover, elephants, facing habitat degradation and destruction, are more likely to walk through rural farms, leading to food scarcity for low-income subsistence farmers in regions throughout Africa and South Asia. This often has downstream effects on the attitudes toward elephants and the related conservation efforts, with humans holding more negative emotions such as frustration, fear, and anger.

Poaching and Multispecies Justice

Negative human interactions have been stated in cases in which humans are harmed or inconvenienced by wildlife. However, cases of multispecies injustice are also important. For instance, the consequences of poaching, in which wildlife is targeted as valuable commodities in medicine and rituals globally, are dual sided. While animals, such as elephants and rhinos, are often killed for body parts, the humans involved perceive

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different consequences: Those who poach for subsistence rather than for riches bear the brunt of the punishments (e.g., fines and arrests). Moreover, the societal outcomes of poaching (e.g., the militarization of park rangers) fail to address its root causes, including the systemic biases that push low-income families or individuals to become involved in poaching and illegal wildlife trade.

Integrating Environmental Justice to Improve HWIs

Because legacies and contemporary acts of injustice shape the spatial arrangement of humans, wildlife, and resources, such that more HWC and fewer positive HWIs occur for particular subsets of people, the potential for integrating EJ into the field of HWIs is rich. Researchers are thinking about inequity in terms of the hidden costs of conflict, which disproportionately impact small-scale families and often women and children as a result of gendered roles. Indeed, integrating EJ would prove fruitful thinking beyond the traditional notions of environmental injustices (e.g., pollution and environmental degradation) to consider wildlife and the emotional impacts of environmental injustices, which would help both HWI and EJ practitioners work toward a more inclusive definition of justice: a multispecies justice. This expansion of the field necessarily includes more just management of HWC, which is largely influenced by human perceptions of animals and politics. For example, dominant strategies for managing zoonotic disease risk typically involve killing the vector (e.g., rats), often en masse. If society values sustainability and justice for the human and beyond-human world, this treatment could hardly be called an ethical or just approach. A more holistic approach may involve addressing landscape attributes and ecological relationships (e.g., reducing food subsidies, bolstering municipal services, and promoting natural predator habitat) that influence rat abundance. At a broader level, rethinking our relationship to wildlife (e.g., dissolving the concept of “bad” or “problematic” wildlife), which could reduce negative interactions with large carnivores, such as wolves, coyotes, and bears, which are often culled if they tread too close to cities.

Several frameworks for rethinking societal relationships with wildlife to enable sustainable and just lives for humans and nonhumans alike have been proposed, including a multispecies justice lens and the responsibility, equity, justice, and inclusion (REJI) approach. In order to reduce HWC and promote more positive HWIs, societies must reorient how they govern and live to emphasize coexistence, empathy, and care amongst humans, as well as between humans and nonhumans. Central to this principle are dynamic racial equity, unity of grassroots efforts and institutional change, as well as uplifting nontraditional theories of belonging to guide

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effective and sustainable HWI.

See also Queer Ecologies; Racial Geographies; Urban Inequalities

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