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Rooted in Justice: Climate Solutions for the Great Salt Lake West Side Communities

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Introduction

Climate change is an environmental issue that continues to threaten global health and wellbeing. Its worsening trajectory is marked by the increasing frequency of extreme weather events such as hurricanes, tornadoes, droughts, heatwaves, and deteriorating air quality (Bell, 2017). The negative impacts of climate change disproportionately fall on developing countries, communities of color, and those with low socioeconomic status (Gutierrez & LePrevost, 2016; Neimanas, 2024). In the US, historically marginalized communities of color have been deliberately situated in areas that have been determined to be undesirable or hazardous due to pollutants in the area (Bullard, 2001; Nelson et al., 2023; Swope et al.,2022). This practice of redlining, a discriminatory policy where neighborhoods were outlined in red on maps to deny residents access to loans and investments based on racial or ethnic composition, exposes communities of lower socioeconomic status and typically people of color to higher environmental risk because they are exposed to more environmental pollutants (Mendoza, 2020). Environmental disparities and injustice come from a long history of systemic oppression that continues to perpetuate these disparities (Carrión et al., 2022). These problems are driven by environmental racism and lead communities of color to be exposed to more environmental hazards like pollution and heat (Pulido, 2015).

The West Side of Great Salt Lake (Rose Park, Glendale, Westpointe, Fairpark, Poplar Grove, West Valley, and the People's Freeway neighborhoods) reflects these social injustices. Within the valley, there has been a historical system of zoning communities as *desirable* and *hazardous* to potential homeowners (García et al., 2024; Nardone et al., 2020; Nelson et al., 2023), with the less desirable and more hazardous zones having especially high populations of people of color (U.S. Census Bureau, 2024). Historical redlining practices, first institutionalized by the Home Owners' Loan Corporation (HOLC) in the 1930s, have had enduring effects on racial and socioeconomic inequality across urban areas in the United States (Lynch et al., 2021). Neighborhoods with high Black or immigrant populations were systematically labeled as "hazardous" for investment, which directly shaped disinvestment patterns and residential segregation that persist today (Nardone et al., 2020; Motairek et al., 2023). The health of these communities is impacted by their proximity to industrial zones, highways, mines, and airports with excessive pollutants (Adams et al., 2021; Berberian et al., 2022; Herrera et al., 2024).

Studies have shown that the longer an individual lives in these conditions the higher their probability of developing a new health condition or exacerbating a current health condition (DeMarco et al., 2020).

Not only do these communities face environmental disadvantages, but climate caused stressors interact with other non-climate caused stressors heightening their combined impact on daily life (Bennet et al., 2016; Lohani et al., 2025b; Räsänen et al., 2016; Ryan et al., 2024). For example, climate-caused stressors can increase financial strain, and incidences of violence ultimately impacting physical and mental health (Bratu et al., 2022; Callender et al., 2022; Miles-Novel & Anderson, 2019; Seon et al., 2024). For the West Side communities, worsening air quality, extreme heat exposure, limited access to green spaces, and the presence of industrial pollutants, all due in part to zoning policies that prioritize industry over residential well-being, impact their daily lives (Hoffman et al.,, 2020). These environmental challenges often exacerbate existing social and economic inequalities, such as limited healthcare access, food insecurity, and unstable housing conditions (Hilmers et al., 2012; Gripper et al.,2022; Mujahid, et. al., 2023). Yet, many community members remain unaware of how deeply the environment is shaping their day-to-day lives. This lack of awareness makes it difficult for residents to advocate for policy change or engage in environmental justice efforts, ultimately leaving them more vulnerable and less empowered to seek out or demand meaningful solutions (Lohani et al., 2025a).

This project aims to shed light on potential solutions and actions that communities on the West Side of the Salt Lake Valley can take as a form of prevention and protection against the systemic disadvantages placed upon them. Through a literature review of feasible solutions that different communities have adopted, our goal was to provide suggestions for potential action that can be taken. Additionally, we spoke with local experts of a variety of fields about both environmental inequalities and solutions. Through these experts we have gathered different ongoing community actions taking place in efforts to mitigate these disadvantages. Lastly the overarching aim of this work is to have an approachable resource guide for community members who are facing complex climate change issues to spread awareness on action they can take as ways of protecting themselves and their community.

Methodology

Literature Review

To better understand and contextualize the multiple stressors impacting West Side communities, a literature review was conducted as the primary method for this project. The review aimed to identify existing research and proposed solutions addressing the complex, overlapping challenges faced by communities of color and low-income populations particularly in relation to environmental issues. A range of academic articles and reports were examined, with careful attention paid to selecting sources that reflected the lived experiences and structural barriers similar to those present on the West Side. Although the materials came from a variety of states and cities across the U.S., relevance was prioritized based on shared social contexts, such as racial and environmental marginalization (Beard et al., 2024) and urban planning inequities (Swope et al., 2022).

In addition to addressing general community stressors, the literature review focused heavily on environmental justice and environmental racism. Studies that examined the health effects of pollution, unequal exposure to environmental hazards, and the lack of access to green infrastructure were particularly important (Collins & Grineski, 2019; Grineski et al., 2024). This body of work also offered insight into grassroots and policy-based solutions, including urban agriculture, community organizing, and environmental health education. The inclusion of environmental justice literature ensured that the analysis remained grounded in an understanding of how structural racism and socio-environmental neglect intersect. This approach allowed for the identification of not only the problems but also actionable pathways toward resilience and repair that are directly relevant to West Side residents.

Expert Interviews

In addition to the literature review, the second core method used in this research project was conducting interviews with local experts whose work directly engages with the environmental and social challenges faced by West Side communities. The selected experts represented a range of relevant fields, including air quality research, urban heat and climate adaptation, city planning, and lived experience in the West Side communities. Each expert was chosen based on their direct connection to or experience working with communities on the West Side. This intentional selection ensured that the information gathered would be contextually relevant and grounded in both data and on-the-ground experience. Experts were invited to respond to a set of three structured questions, that were open-ended, and designed to capture their insights, while a few participated in more in-depth, one-on-one interviews that allowed for deeper exploration of their perspectives for interview questions.

Results

The data collected from these expert responses were analyzed using a thematic analysis approach. All responses were reviewed and used to identify recurring ideas, language, and proposed interventions. Key themes that emerged included the urgency of addressing extreme heat, the cumulative impact of poor air quality, the lack of community awareness around environmental risks, and the importance of incorporating local voices into planning and policy. Thematic analysis also allowed for the identification of overlapping solutions such as increased tree canopy coverage, the expansion of community-led green infrastructure, and the need for accessible educational campaigns. These expert contributions were essential in bridging the gap between academic research and real-world, localized solutions. By synthesizing their insights, this method helped build a clearer picture of both the barriers and opportunities for improving environmental outcomes in West Side communities.

Environmental Problems faced by West Valley Utahns

Experts overwhelmingly identified air pollution as the most pressing environmental problem impacting the West Side. They attributed this issue to the area's proximity to industrial zones, major highways, and railways, which emit high levels of pollutants such as particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2). Additionally, the drying of the Great Salt Lake was repeatedly mentioned as a growing hazard. As the lakebed becomes increasingly exposed, dust

storms carry harmful particulates into surrounding neighborhoods, worsening respiratory conditions and reducing overall air quality (Grineski et al., 2024). Many experts noted that these cumulative exposures create a dangerous daily environment for residents, especially children, elders, and individuals with chronic health conditions.

Beyond pollution, a major underlying theme in the conversations was the role of systemic racism in shaping current environmental disparities. Several experts pointed directly to historical redlining practices, which segregated communities of color into areas now heavily burdened by environmental stressors. These decisions were not incidental; they laid the groundwork for what many experts referred to as environmental racism, where Black, Latino, and immigrant communities were systematically placed in harm's way through urban planning and zoning (Hoffman et al., 2020; Wang et al., 2024). Experts emphasized that without naming and addressing these historical injustices, efforts to improve the area's environmental health will remain incomplete or ineffective.

Relatedly, it's important to understand the historical context of redlining in the West Side communities to help understand the intersectional implications and highlight the importance of this history as it continues to impact these communities. In the state of Utah, these practices also occurred, with mapping showing the "hazardous" neighborhoods on the West Side (Nelson et al., 2023). A growing body of research shows that formerly redlined areas are now disproportionately burdened by environmental hazards, including poor air quality, lack of green space, and increased exposure to heat (Hoffman et al., 2020). These areas often align with zones of lower socioeconomic status, where residents have reduced access to healthcare, infrastructure, and political capital to resist unwanted land use or pollution. The impacts are not geographically isolated. tudies in cities such as Los Angeles, New York, Detroit, and Chicago have demonstrated similar patterns of environmental racism, where communities of color are more likely to live near highways, industrial facilities, and other sources of environmental stress (Morello-Frosch et al., 2001; Mitchell & Chakraborty, 2018). This legacy of structural discrimination contributes to ongoing racial health disparities, worsens climate vulnerability, and amplifies the cumulative effects of systemic neglect.

Several other environmental concerns were mentioned by the experts interviewed. A lack of green space and tree coverage was cited as contributing to both physical and mental health challenges. In their absence, West Side communities face intensified urban heat island effects, where dark surfaces and minimal vegetation result in neighborhoods being several degrees hotter than wealthier, tree-lined areas (Tong, et al., 2021). These heat disparities are growing more dangerous as climate change continues to drive more frequent and intense heat waves.

Collectively, these issues form a web of intersecting environmental and social stressors (Flores et al., 2025). Indeed, experts stressed the importance of viewing pollution, zoning, heat, and historical racism not as separate issues but as deeply connected, requiring integrated solutions. Any future interventions, they argued, must be rooted in the lived experiences of the West Side's communities and acknowledge the long history that has led to the current conditions.

Potential Solutions to Mitigate Environmental Challenges

Experts emphasized that addressing the West Side's environmental challenges requires both technical interventions and community-rooted strategies. One of the most commonly proposed solutions was improving air quality infrastructure, such as installing real-time air quality monitors, providing air filters in schools and homes, and increasing public awareness of pollution levels. These tools are vital in communities facing high cumulative air pollution burdens, especially where asthma and other respiratory conditions are prevalent (Mullen et al., 2025). A local environmental research expert mentioned the use of *Purple Air*, a real time data monitor share that creates a network of air quality based on usage of private air monitors. Additionally, low-cost air filters are also a resource available for the community. Research supports the effectiveness of these interventions: real-time air monitoring and targeted dissemination of air quality alerts can lead to behavioral changes that reduce air-pollution exposure, particularly in sensitive populations like children and the elderly (Bravo et al., 2016; Jerrett et al., 2017).

Beyond infrastructure, experts consistently stressed the importance of community education and participation. This includes educating residents about environmental risks, how to reduce personal exposure, and how to advocate for policy changes. Experts argued that these efforts should center community voices and be grounded in the specific needs of the community, with residents actively shaping the design and implementation of environmental solutions. This aligns with literature in environmental justice, which shows that community-led interventions are more effective, sustainable, and equitable (Solomon et al., 2016). Public health campaigns that partner with trusted community leaders have been shown to improve not only environmental literacy but also health outcomes, especially in underserved areas (Morello-Frosch et al., 2009).

A central theme throughout expert interviews was that any meaningful solution must be collaborative. Rather than relying solely on government or nonprofit agencies, experts emphasized the need for long-term partnerships with neighborhood organizations, schools, and residents themselves. This model reflects best practices in climate adaptation and urban resilience, where community co-design has been shown to improve trust, increase implementation success, and reduce the risk of green gentrification or policy backlash (Anguelovski et al., 2019). Experts urged that this work be rooted in racial and environmental justice principles to repair historical harms and prevent future disinvestment. Another frequently mentioned intervention was increasing tree canopy and shaded green space, alongside the expansion of cooling centers during heatwaves. Experts noted that not only do trees provide essential shade, but they also improve air quality, reduce urban heat island effects, and enhance mental well-being. Studies have found that increased urban tree coverage can lower neighborhood temperatures by several degrees and reduce emergency room visits during heat events (Jesdale et al., 2013; Ziter et al., 2019). In high-heat, low-income neighborhoods, cooling centers also serve as life-saving public health infrastructure, especially when paired with outreach to ensure accessibility for seniors and those without air conditioning.

Overall, experts made it clear that solutions must go beyond surface-level fixes. They called for investments that acknowledge historical neglect, center community knowledge, and address the root causes of environmental injustice. The combination of technical tools, education, green infrastructure, and inclusive governance was presented not just as ideal but as an essential requirement for Utahns.

Challenges in Implementing Climate Mitigation and Adaptation Solutions

While experts offered clear and actionable solutions to improve environmental conditions on the West Side, they also acknowledged a number of systemic challenges that stand in the way of implementing meaningful progress. One of the most frequently mentioned barriers is the lack of environmental policy and funding, especially at the local and state levels. Without clear policies that mandate clean air protections, heat adaptation strategies, or green infrastructure investments, the experts recognized that it would be difficult to secure the resources and accountability needed for long-term change. Different experts we spoke to emphasized that many promising initiatives remain underfunded or delayed not because they're unimportant, but because there's no legislative backing to make them a priority. Additionally, environmental justice policies remain ambiguous or to the discretion of local state regulation causing difficulty in implementation (Henderson, 2022). A local urban planning expert mentioned how there are no environmental mandates that have to be adhered to. Additionally, a construction site expert mentioned at a smaller scale the lack of proper heating education by construction companies can be a huge issue for crew members.

However, experts emphasized that this policy vacuum also creates an opportunity for grassroots leadership and bottom-up solutions, where communities aren't waiting for permission to act. One local urban planner we spoke to shared that without regulatory mandates or institutional support, it becomes nearly impossible to access funding for projects, especially when working alone or outside of formal city channels. The lack of environmental regulations that specifically address cumulative burdens and equity only deepens the gap between communities in need and the resources meant to serve them. Still, this doesn't mean the work stops it simply shifts. It moves into classrooms, community centers, libraries, and neighborhood meetings, where local solutions are being crafted and carried out by residents themselves.

Unsurprisingly, this gap in environmental regulation is not unique to Utah. Across the country, research has shown that environmental health regulations often fail to address cumulative exposures especially in historically marginalized communities. Many air quality standards, for example, are designed based on city-wide averages, which overlook the localized pollution burdens faced by marginalized neighborhoods (Shonkoff et al., 2012). Konisky & Reenock (2017) argue that without specific regulatory mechanisms for enforcement in overburdened communities, environmental injustice will continue unchecked. While strengthening state and federal policy is a critical long-term goal, experts in this project acknowledged that local and individual-level actions—such as providing air filters, planting trees, or expanding community education—can still lead to meaningful, tangible improvements.

Another major challenge brought up by local experts is community mistrust, particularly toward institutions that have historically failed to protect or even actively harmed communities of color and low-income residents. Experts we spoke to, who focus on working with community members, explain that in the absence of trust, well-meaning programs can be perceived as temporary, insincere, or disconnected from local realities. This is why local experts also strongly recommended that solutions should have community buy in and engagement. Research backs this approach: community-led environmental health projects are more likely to gain buy-in,

achieve behavioral change, and build long-term sustainability (Ramirez-Andreotta et al., 2016). When residents feel seen, heard, and empowered to lead, they're more likely to participate, share information, and contribute to long-term neighborhood resilience.

The cost of solutions is another frequently mentioned obstacle by the experts we spoke to. Installing air filtration systems, planting trees, running cooling centers, and distributing educational materials all require financial investment, something that can be difficult to secure, especially in under-resourced neighborhoods. However, local experts were quick to point out that not all solutions require large budgets. In fact, several effective and accessible resources already exist in the community. For example, the Clean Air Room at the Glendale Library is a free and open resource for anyone needing relief from high pollution days. Additionally, cooling centers are activated during heat waves to provide safe, air-conditioned spaces for residents without access to reliable indoor cooling.

These existing services are examples of how small-scale interventions can make a big impact. They also demonstrate the importance of keeping solutions accessible and inclusive, ensuring that no resident is left behind due to language barriers, transportation limitations, or lack of information. By building on the resources already in place and expanding them through collaboration with community leaders and public agencies, West Side neighborhoods can continue to make progress even in the face of larger systemic barriers. While the challenges are real and significant, experts emphasized that hope and progress lie in collective, community-rooted action. Through creative partnerships, policy advocacy, and trust-building, powerful tools for justice and resilience can be created.

Discussion

The environmental challenges facing the West Side are complex, deeply rooted in structural inequities, and require sustained, community-based responses. The experts we spoke to highlighted recurring problems, air pollution, heat exposure, lack of green space, and a legacy of redlining that collectively harms the health and wellbeing of West Side residents. These conditions are not accidental but rather the result of decades of disinvestment and discriminatory urban planning practices referred to as redlining (Korevaar, 2014; Mayer et al., 1973). Despite this, the West Side is not a community of despair, it is a space of resilience, creativity, and action.

Main Reflections from Experts

Throughout this project, a few experts identified several key environmental problems that continue to impact West Side communities. The most urgent concern is air pollution, which stems from the area's proximity to industrial zones, highways, and the drying Great Salt Lake (Collins & Grineski 2019; Grineski et al., 2024). The experts we spoke to addressed that these environmental burdens are deeply intertwined with historical practices of redlining and environmental racism, which have long shaped who lives where, and with what resources. Other problems, like lack of tree coverage, increased urban heat, and limited green space, further amplify health and safety risks for residents,

Solutions proposed by local experts were hopeful and community centered. They emphasized the need for accessible air quality resources, like monitors and air filters, as well as green infrastructure such as tree planting and cooling centers. Furthermore, the experts we interviewed called for community education and participation at every level, reinforcing that lasting solutions must be led by and built for the people most affected. When residents are empowered with information, resources, and leadership roles, change can become both possible and sustainable.

Yet, these solutions don't come without challenges. Some experts we spoke to exclaimed that a lack of policy and funding often prevents ideas from scaling up, and community mistrust remains a real barrier due to past neglect and exclusion. Despite this, West Side neighborhoods continue to move forward. Resources like the Clean Air Room at Glendale Library, along with city-run cooling centers, offer accessible ways to reduce harm during extreme air quality or heat events. Local organizations and health departments are also working to expand air monitoring and emergency preparedness, specifically for communities like Glendale and Poplar Grove, where exposure levels remain high.

The importance of education and trusted educators cannot be overstated in this work. Experts interviewed stressed that the most effective outreach comes from people who are deeply connected to the West Side (those who live there, work there, or have longstanding relationships in the community). These individuals are not only considered trustworthy by the community members, but they also understand the nuances of local needs and concerns. Investing in community-based educators, especially those already working in schools, libraries, clinics, and churches, is critical for building trust and creating a pipeline for lasting environmental health leadership on the West Side.

Implications of this work

Our study was limited to consulting literature and a few relevant local experts for information. Thus, we acknowledge that our insights may be incomplete. A more comprehensive review will be necessary to gain a thorough understanding of the challenges facing West Side residents and their solutions. The experts we were able to interview emphasized the belief that solutions must be both immediate and long-term, and most importantly, centered on the needs of the community. Many experts proposed tangible interventions and pushed for awareness and education, especially by trusted messengers who are from the West Side and already embedded in schools, libraries, and community groups. One local construction worker shared how on work sites, there's an unspoken understanding among crews that they look out for one another, share water, create shaded areas, and protect each other from heat. This same mindset of collective care is what experts hope to replicate at the neighborhood level. Experts we spoke with noted a visible expansion of urban greenery, especially through new grants and community partnerships that support tree planting and green space restoration. Similarly, cooling centers have increased in both availability and visibility, giving residents safe options during heatwaves. The Clean Air Room at the Glendale Library stands as a powerful symbol of what can happen when public institutions prioritize health, access, and equity. These efforts reflect not only resilience but a growing infrastructure of care that's rooted in the knowledge and leadership of the people who live here.

Ultimately, the discussion around environmental health on the West Side is as much about repair and recognition as it is about innovation. It requires acknowledging systemic harm while investing in systems of mutual aid, neighborhood pride, and culturally relevant solutions. That's how real environmental justice is built block by block, neighbor by neighbor, with care, collaboration, and commitment.

References

Adams, R. M., Evans, C. M., Mathews, M. C., Wolkin, A., & Peek, L. (2021). Mortality from forces of nature among older adults by race/ethnicity and gender. *Journal of Applied Gerontology, 40*(11), 1517–1526. https://doi.org/10.1177/0733464820954676

Anguelovski, I., Connolly, J. J. T., Pearsall, H., Shokry, G., Checker, M., Maantay, J., Gould, K., Lewis, T., Maroko, A., & Roberts, J. T. (2019). Why green "climate gentrification" threatens poor and vulnerable populations. *Proceedings of the National Academy of Sciences of the United States of America, 116*(52), 26139–26143. https://doi.org/10.1073/pnas.1920490117

Beard, S., Freeman, K., Velasco, M. L., Boyd, W., Chamberlain, T., Latoni, A., Lasko, D., Lunn, R. M., O'Fallon, L., Packenham, J., Smarr, M. M., Arnette, R., Cavalier-Keck, C., Keck, J., Muhammad, N., Wilson, O., Wilson, B., Wilson, A., & Dixon, D. (2024). Racism as a public health issue in environmental health disparities and environmental justice: Working toward solutions. *Environmental Health, 23*(1), 8–10. https://doi.org/10.1186/s12940-024-01052-8

Bell, J. E., Brown, C. L., Conlon, K., Herring, S., Kunkel, K. E., Lawrimore, J., ... & Uejio, C. (2018). Changes in extreme events and the potential impacts on human health. *Journal of the Air & Waste Management Association, 68*(4), 265–287. https://doi.org/10.1080/10962247.2017.1401017

Bennett, N. J., Blythe, J., Tyler, S., & Ban, N. C. (2016). Communities and change in the Anthropocene: Understanding social-ecological vulnerability and planning adaptations to multiple interacting exposures. *Regional Environmental Change, 16*, 907–926.

Berberian, A. G., Gonzalez, D. J. X., & Cushing, L. J. (2022). Racial disparities in climate change-related health effects in the United States. *Current Environmental Health Reports, 9*(3), 451–464. https://doi.org/10.1007/s40572-022-00360-w

Bratu, A., Card, K. G., Closson, K., Aran, N., Marshall, C., Clayton, S., ... & Hogg, R. S. (2022). The 2021 Western North American heat dome increased climate change anxiety among British Columbians: Results from a natural experiment. *The Journal of Climate Change and Health, 6*, 100111.

Bravo, M. A., Anthopolos, R., Bell, M. L., & Miranda, M. L. (2016). Racial isolation and exposure to airborne particulate matter and ozone in understudied US populations: Environmental justice applications of downscaled numerical model output. *Environment international*, 92-93, 247–255. https://doi.org/10.1016/j.envint.2016.04.008

Bullard, R. D. (2001). Environmental justice in the 21st century: Race still matters. *Phylon, 49*(3/4), 151–171

Callender, R., Canales, J. M., Avendano, C., Craft, E., Ensor, K. B., & Miranda, M. L. (2022). Economic and mental health impacts of multiple adverse events: Hurricane Harvey, other flooding events, and the COVID-19 pandemic. *Environmental Research, 214*, 114020.

Carrión, D., Belcourt, A., & Fuller, C. H. (2022). Heading upstream: Strategies to shift environmental justice research from disparities to equity. American Journal of Public Health, 112(1), 59–62. https://doi.org/10.2105/AJPH.2021.306605

Collins, T. W., & Grineski, S. E. (2019). Environmental injustice and religion: Outdoor air pollution disparities in metropolitan Salt Lake City, Utah. *Annals of the American Association of Geographers, 109*, 1597–1617.

DeMarco, A. L., Hardenbrook, R., Rose, J., & Mendoza, D. L. (2020). Air pollution-related health impacts on individuals experiencing homelessness: Environmental justice and health vulnerability in salt lake county, utah. International Journal of Environmental Research and Public Health, 17(22), 8413. https://doi.org/10.3390/ijerph17228413

Flores, C. U., Blodgett, G., Paulino Izquierdo, L., & Lohani, M. (2025). *Complex Impacts: Examining the Interactions of Multiple Climate and Non-Climate Caused Stressors on West Side Utahns.* The RANGE Journal (this issue).

García, I., Biamont, A., & Klopfenstein, J. (2024). A case study of story mapping, neighborhood change, and community assets of Ballpark, Salt Lake City. *Land, 13*(10), 1573. https://doi.org/10.3390/land13101573

Grineski, S. E., Mallia, D. V., Collins, T. W., Araos, M., Lin, J. C., Anderegg, W. R. L., & Perry, K. (2024). Harmful dust from drying lakes: Preserving Great Salt Lake (USA) water levels decreases ambient dust and racial disparities in population exposure. *One Earth, 7*, 1056–1067.

Gripper, A. B., Nethery, R., Cowger, T. L., White, M., Kawachi, I., & Adamkiewicz, G. (2022). Community solutions to food apartheid: A spatial analysis of community food-growing spaces and neighborhood demographics in Philadelphia. *Social Science & Medicine, 310*, 115221. https://doi.org/10.1016/j.socscimed.2022.115221

Gutierrez, K. S., & LePrevost, C. E. (2016). Climate justice in rural Southeastern United States: A review of climate change impacts and effects on human health. *International Journal of Environmental Research and Public Health, 13*(2), 189. https://doi.org/10.3390/ijerph13020189

Henderson, D. A. (2022). Environmental justice litigation: Few wins, still effective. *Natural Resources & Environment, 36*(2), 17–21.

Herrera, M. T., Girma, B., Ghassabian, A., & Trasande, L. (2024). Environmental Racism and Child Health. Academic pediatrics, 24(7S), S167–S172. https://doi.org/10.1016/j.acap.2023.09.016

Hilmers, A., Hilmers, D. C., & Dave, J. (2012). Neighborhood disparities in access to healthy foods and their effects on environmental justice. *American Journal of Public Health, 102*(9), 1644–1654. https://doi.org/10.2105/ajph.2012.300865

Hoffman, J. S., Shandas, V., & Pendleton, N. (2020). The effects of historical housing policies on resident exposure to intra-urban heat: A study of 108 U.S. urban areas. *Climate, 8*(1), 12. https://doi.org/10.3390/cli8010012

Jerrett, M., Donaire-Gonzalez, D., Popoola, O., Jones, R., Cohen, R. C., Almanza, E., de Nazelle, A., Mead, I., Carrasco-Turigas, G., Cole-Hunter, T., Triguero-Mas, M., Seto, E., & Nieuwenhuijsen, M. (2017). Validating novel air pollution sensors to improve exposure estimates for epidemiological analyses and citizen science. *Environmental research,* 158, 286–294. https://doi.org/10.1016/j.envres.2017.04.023

Jesdale, B. M., Morello-Frosch, R., & Cushing, L. (2013). The racial/ethnic distribution of heat risk-related land cover in relation to residential segregation. *Environmental health perspectives*, *121*(7), 811–817. https://doi.org/10.1289/ehp.1205919

Konisky, D. M., & Reenock, C. (2017). Regulatory enforcement, riskscapes, and environmental justice. *Policy Studies Journal, 45*(4), 699–722. https://doi.org/10.1111/psj.12203

Korevaar, H. M. (2014). *This is the Place: Race, Space, Religion and the Law in Salt Lake City* [Bachelor of Arts with Departmental Honors, Wesleyan University]. https://doi.org/10.14418/wes01.1.1048

Lohani, M. & Blodgett, G. (2025). Innovative and ecological: Integrating ecological momentary assessment into environmental science research. *Frontiers in Psychology, 16*, 1557055.

Lohani, M., Cachelin, A., Banerjee, D., Brunelle, A., Yeo, S., Zummo, L., & Shah, J. (2025c). Student responses to the climate crisis: Managing distress and exploring support systems. *International Journal of Sustainability in Higher Education.*

Lohani, M., Elsey, J., Dutton, S., & Zummo, L. (2025b). Climate change is linked to daily wellbeing: The role of environmental, governmental, and commute-related stressors. *Cogent Mental Health.* In *Mental Health on a Changing Planet: Exploring the Implications of the Climate and Ecological Emergency.*

Lohani, M., Velásquez-Franco, S., Janney, B., & Zummo, L. (2025a). Voices unheard: Meaning, implications, and challenges for historically marginalized communities at the forefront of climate change. *Interdisciplinary Journal of Environmental and Science Education, 21*(3), e2512.

Lynch, E. E., Malcoe, L. H., Laurent, S. E., Richardson, J., Mitchell, B. C., & Meier, H. C. S. (2021). The legacy of structural racism: Associations between historic redlining, current mortgage lending, and health. *SSM - Population Health, 14*, 100793. https://doi.org/10.1016/j.ssmph.2021.100793

Mayer, V. V., Morgan, P., Nelson, A., & Coronado, G. (1973). *Working papers toward a history of the Spanish-speaking people of Utah: A report of research of the Mexican-American Documentation Project | American West Center Research Projects.* https://collections.lib.utah.edu/details?id=1396789

Miles-Novelo, A., & Anderson, C. A. (2019). Climate change and psychology: Effects of rapid global warming on violence and aggression. *Current Climate Change Reports, 5*, 36–44.

Mitchell, B. C., & Chakraborty, J. (2018). Urban heat and climate justice: A landscape of thermal inequity in Pinellas County, Florida. *Geographical Review, 108*(4), 542–566. https://doi.org/10.1111/gere.12257

Motairek, I., Chen, Z., Makhlouf, M. H. E., Rajagopalan, S., & Al-Kindi, S. (2023). Historical neighbourhood redlining and contemporary environmental racism. *Local Environment*, *28*(4), 518–528. https://doi.org/10.1080/13549839.2022.2155942

Mujahid, M. S., Maddali, S. R., Gao, X., Oo, K. H., Benjamin, L. A., & Lewis, T. T. (2023). The impact of neighborhoods on diabetes risk and outcomes: Centering health equity. *Diabetes Care, 46*(9), 1609–1618. https://doi.org/10.2337/dci23-0003

Mullen, C. J., Grineski, S. E., Herrera, M. M., Christian, L. P., & Cuello, J. (2025). "If You Had a Sensor, You Would Know": Unequal exposures and behavioral responses to indoor air pollution. *Society & Natural Resources*, 1–19. https://doi.org/10.1080/08941920.2025.2524747

Mendoza, D. L. (2020). The relationship between land cover and sociodemographic factors. *Urban Science, 4*(4), 68. https://doi.org/10.3390/urbansci4040068

Morello-Frosch, R., Pastor, M., & Sadd, J. L. (2001). Environmental justice and Southern California's "riskscape": The distribution of air toxics exposures and health risks among diverse communities. *Urban Affairs Review, 36*(4), 551–578. https://doi.org/10.1177/10780870122184993

Nardone, A., Casey, J. A., Morello-Frosch, R., & Mujahid, M. (2020). Associations between historical redlining and present-day air pollution disparities in U.S. cities. *Environmental Health Perspectives, 128*(9), 097005. https://doi.org/10.1289/EHP7495

Neimanas, N. (2024). Historical, economic, and political dimensions of environmental racism. *Journal of Poverty, 28*(3), 230–243. https://doi.org/10.1080/10875549.2022.2128981

Nelson, R. K., Winling, L, et al. (2023). Mapping Inequality: Redlining in New Deal America. Digital Scholarship Lab. https://dsl.richmond.edu/panorama/redlining.

Pulido, L. (2015). Geographies of race and ethnicity 1: White supremacy vs white privilege in environmental racism research. *Progress in Human Geography*, 39(6), 809–817. https://doi.org/10.1177/0309132514563008

Ramirez-Andreotta, M. D., Brody, J. G., Lothrop, N., Loh, M., Beamer, P. I., & Brown, P. (2016). Reporting back environmental exposure data and free choice learning. *Environmental health : a global access science source*, *15*, 2. https://doi.org/10.1186/s12940-015-0080-1

Räsänen, A., Juhola, S., Nygren, A., Käkönen, M., Kallio, M., Monge, A., & Kanninen, M. (2016). Climate change, multiple stressors and human vulnerability: A systematic review. *Regional Environmental Change, 16*, 2291–2302.

Ryan, S. C., Sugg, M. M., Runkle, J. D., Wertis, L., Singh, D., & Green, S. (2024). Short-term changes in mental health help-seeking behaviors following exposure to multiple social stressors and a natural disaster. *Social Science & Medicine, 348*, 116843.

Seon, Q., Greaves, N., Campbell, M., Anderson, S., Henry, P., Augustus, E., ... & Maharaj, S. B. (2024). Exploratory empirical model of combined effects of COVID-19 and climate change on youth mental health. *Nature Mental Health, 2*(2), 218–227.

Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, *129*(1), e232–e246. https://doi.org/10.1542/peds.2011-2663

Solomon, G. M., Morello-Frosch, R., Zeise, L., & Faust, J. B. (2016). Cumulative environmental impacts: Science and policy to protect communities. *Annual Review of Public Health, 37*, 83–96. https://doi.org/10.1146/annurev-publhealth-032315-021807

Swope, C. B., Hernández, D., & Cushing, L. J. (2022). The relationship of historical redlining with present-day neighborhood environmental and health outcomes: A scoping review and conceptual model. *Journal of Urban Health, 99*, 959–983. https://doi.org/10.1007/s11524-022-00665-z

Tong, S., Prior, J., McGregor, G., Shi, X., & Kinney, P. (2021). Urban heat: an increasing threat to global health. BMJ (Clinical research ed.), 375, n2467. https://doi.org/10.1136/bmj.n2467

U.S. Census Bureau. (2024). QuickFacts: West Valley City, Utah. U.S. Department of Commerce. https://www.census.gov/quickfacts/fact/table/westvalleycitycityutah,US/PST045223

Wang, M. L., Gago, C. M., & Rodriguez, K. (2024). Digital redlining—The invisible structural determinant of health. *JAMA, 331*(15), 1267–1268. https://doi.org/10.1001/jama.2024.1628

Ziter, C. D., Pedersen, E. J., Kucharik, C. J., & Turner, M. G. (2019). Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat

during summer. *Proceedings of the National Academy of Sciences of the United States of America, 116*(15), 7575–7580. https://doi.org/10.1073/pnas.1817561116