A Brief on the State of Contamination in Our City

Our city has become widely contaminated from catastrophic levels of extraction and industrial pollution over past decades. The Sensitives have been supporting efforts in mapping out toxic sites that pose a high risk to our health.

TOXIC HOTSPOTS DETECTED WITHIN CITY LIMITS[5]

1744	147	16
hazardous waste sites*	brown field sites**	superfund sites***

*Where flammable, corrosive, explosive, or toxic waste that is harmful to human health is produced.
**Properties that are idle due to the presence of hazardous substances, pollutants, or contaminants.
***The most contaminated hazardous waste sites, can contain heavy metals, radioactive substances, or pesticides.

⚠ WARNING

- Exposure from living near toxic zones may cause you to develop respiratory problems, seizures, cancers, and chromosomal changes that can lead to premature death[6]
- You are more likely to be live near these sites if you are a racial minority, live below the poverty line, and have an education level below high school[7]
- Long term exposure to chemicals from living near toxic sites may cause you to develop chemical sensitivity, and is 2-4 times more likely if you are a woman[8]
- Most toxic sites are not visually distinct in appearance.

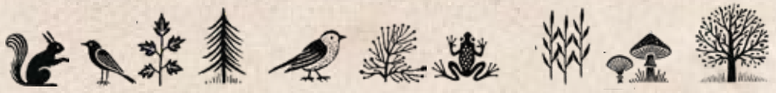
AN ENCOUNTER THAT INSPIRED RAY-FLATS

Ray-Flats was first designed by a member of the environmental illness community, Sy, who discovered she was living near a contaminated site after moving to the city. Sy's health started to decline after she arrived - becoming weaker, heavier, and more sensitive. She had noticed a lush green space across from her home that was covered with plants with abundant wildlife. But the site was surrounded by a chain link fence that kept people out. Growing curious, Sy started looking for information about the site. It wasn't until she found an old map tucked away in the archives that she realized: She was living next to a site marked toxic, contaminated with heavy metals, including lead. Sy felt an eerie disconnection - the landscape appeared healthy but carried a toxic history beneath its surface. It made her question: Was the contamination making her sick? Why didn't it make the plants sick (or did it)? How much of our environment carries such invisible scars? And how often do we fail to notice?



DOCUMENTED MORE-THAN-HUMAN STRAGEGIES OF LIVING WITH TOXICITY

pollution resilient species | pollution indicating species | pollution remediating species



We've observed a diverse range of more-than-human life that live alongside toxicity. Some organisms have grown resilient to pollution, some have evolved to change appearance in the presence of toxicity, becoming a warning signal to others, and some have even developed the ability to remove toxins from the earth[9]. These more-than-humans work in interdependent networks to respond to wide-spread pollution. The design of Ray-Flats draws from these sensing and signaling strategies to work toward collaborative survival.

Ray-Flats: A Guide

Ray-Flats was designed to detect polluted land, serving as a form protection. But it also functions as a tool to reconfigure environmental relations: It helps us notice, map, and relate differently to toxicity in a permanently polluted world.



Considerations for use

- Put Ray-Flats on with care. Once the shoes are on your body, you become the "human sensor."
- Start walking. Ray-Flats works best outdoors.
- While walking, notice how your attention shifts. Take note of your surroundings and how your body is feeling.
- Notice your pace. Have you slowed down or sped up?
- When the shoes start to glow, you have entered the toxic zone. They may flicker at the edges of the zone.
- Take note of the color of the glow.
- Under the glow, observe the landscape and all its more-than-human kin in their complexity. Do you see or hear anything you haven't noticed before?
- Take note of other people you pass as you walk. Are they intrigued? Alarmed? Are they receiving your signal?

Interpreting the Glow

Ray-Flats will glow near heavily polluted sites. When you enter a "hazardous zone," the shoes will start to brighten. Within a close distance of the toxic site, the shoes will glow at maximum brightness.

entering hazardous zone — close to marked site

Different shades of color will appear depending on your proximity to specific types of polluted land. These categories overlap and their pollution sources are not distinct. Ray-Flats reflects this ambiguity in its hues - hovering between a spectrum from biohazard yellow to radioactive green.

brownfield sites — hazardous waste sites — Superfund sites

A Speculative Fabulation From Environmental Illness Narratives

Living with an environmental illness[1] is like being in a speculative world.

In this world, our everyday environments are contaminated with harmful chemicals. Toxins lurk in every corner of our lives - in the air we breathe, in the water we drink, and on the land we reside, making us feel sick with every encounter. These conditions compel us to imagine alternative ways of living in this polluted world.

To protect ourselves, we must navigate our environment to minimize threats: dodge toxic plumes, avoid pollution hot spots, and wear protective gear that shield us from harmful toxins. At the same time, we have learned that "purity is not an option[2]," and we must stay with the trouble of this contaminated existence - learn to live with and alongside toxicity.

Members of the environmental illness community, also known as the Sensitives, are among the wayfinders of this polluted world. As the human sensors[3] of our time, we harness our sensitivity as a sensing ability. Our environmental acuity helps guide us and others to live between promise and ruin.

Collectively, we have developed strategies for this contaminated survival, including designing and building tools to help navigate the invisible yet ubiquitous toxicity. One of these is Ray Flats[4] -- shoes that glows in proximity to polluted land, visualizing and amplifying our bodily senses as a signal to ourselves and others.

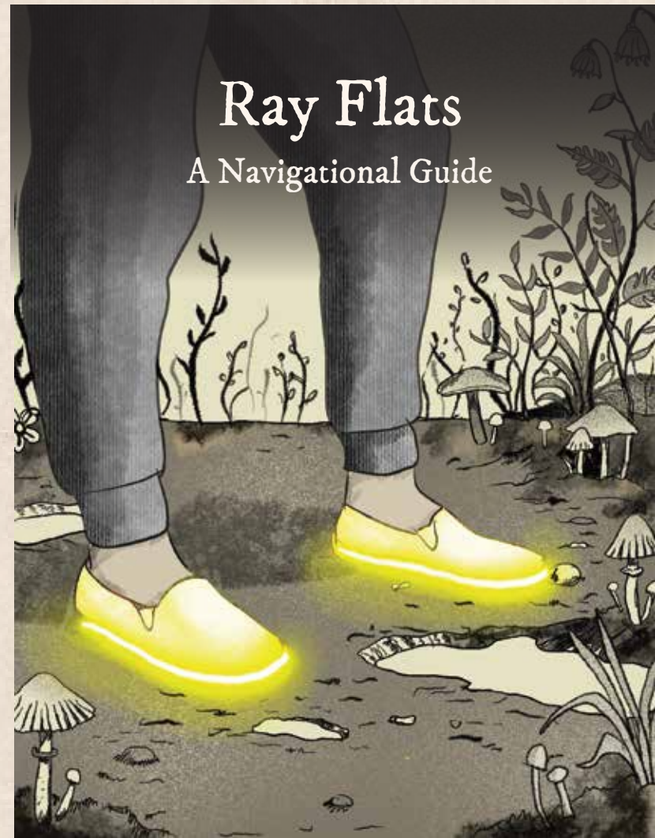
Ray-Flats help us identify toxic hotspots in the city. With its help, we have started to map our paths to traverse through and around the contaminated spaces in our city. At the same time, Ray-Flats also encourage practices of noticing, helping us see the complexity of our polluted landscape and reorient our relationship toward toxicity so we can learn to live with it. Now it's time for this knowledge to be shared.

When you put on Ray-Flats, you become the sensor, leading us through uncertain, contaminated landscapes. Follow the shoes, but listen to your body.

Navigate with Care.

Endnotes

1. Environmental illness, sometimes known as Multiple Chemical Sensitivity or sick building syndrome, is a chronic multi-system physical reactions to minimal amounts of toxic chemical exposure. This condition disproportionately affects women and is often medically dismissed. See for example: Mel Chen (2011), Hsuan Hsu (2020), Stacy Alaimo (2010), Sophia Jaworski (2022), Michelle Murphy (2006).
2. See Anna Tisng's Mushrooms at the End of the World (2015).
3. Environmental illness communities and scholars have self described as "human sensors" due to their embodied sensitivity and reactivity to toxic chemicals, making their bodies better indicators of toxic conditions than sensing machines.
4. Ray-Flats was first developed as a tangible artifact and a form of material speculation. The name is a reference to Ray-Cat, which alludes to the idea of a "living radiation detector" in the form a cat that would change color in the presence of nuclear waste. Ray-Cat was part of a famous proposal by philosophers Françoise Bastide and Paolo Fabbri responding to the 1981 Department of Energy's Human Interference Task Force's call for a long term nuclear waste warning message.
5. These numbers are approximations based on the EPA EnviroAtlas map for the city of Atlanta, where this project is based.
6. As described on the EPA factsheet for hazardous waste sites: https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/Supplemental/EPARegulatedFacilitiesHazardousWaste.pdf
7. Unequal impacts of pollution that disproportionately affect racial minorities and people in poverty has been widely documented. See for example Slow Violence and the Environmentalism of the Poor (2011) by Rob Nixon.
8. The gendered experience of environmental illness has been seen in various studies. See for example: Arbuckle, "Are there sex and gender differences in acute exposure to chemicals in the same setting?" (2006).
9. Pollution resilient species are commonly found in urban areas, including many invasive species, like kudzu. Examples of sentinel species, or indicators of toxicity, include lichens, which change in appearance in the presence of pollution. Toxin remediating species include willows, sunflowers,and certain fungi, which taken up toxins from the land.



Marked Toxic Sites

Walked Route

Notable More-than-Human Sightings within toxic zones

14th street

mosque

Northside Drive

Techwood Drive

park

church

home

police station

State Street

Hemphill Road

park

N

W

E

S

250'

500'

1000'

Toxic Sites and More-than-Human Life in Home Park