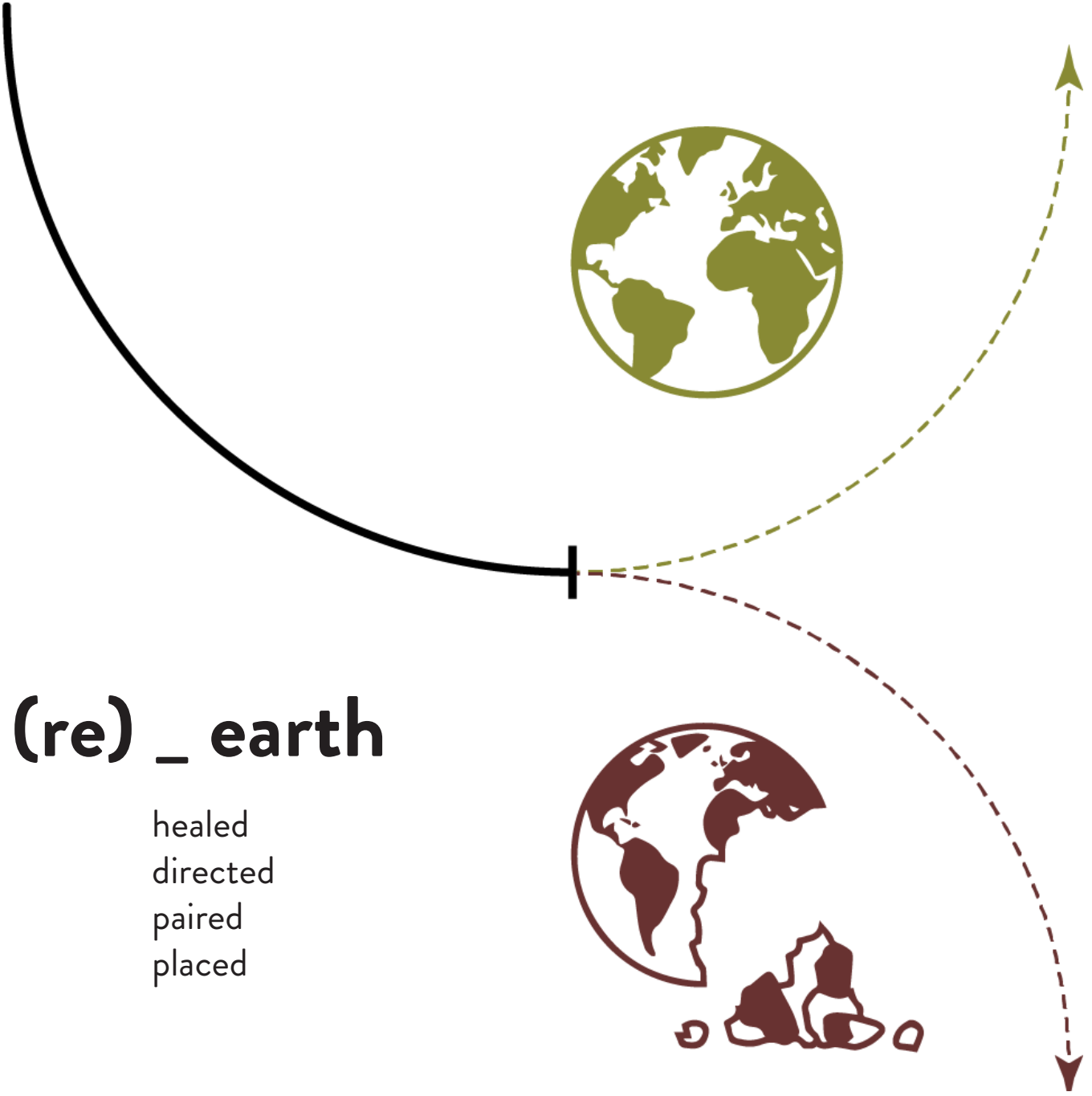


(re) _ earth

healed
directed
paired
placed

Emely Balaguera · em²
Pratt Institute School of Architecture · Degree Project · Fall 2020

Emely Balaguera · em² (In collaboration with Emmaleigh Lebedz)
(re)_earth

Pratt Institute School of Architecture
Fall 2020

A501 Degree Project Research

Degree Project Faculty: Eva Perez de Vega, Gonzalo Carbajo, Daniela Fabricius
Degree Project Advisors: Ariane Harrison, Tom Hanrahan

Contents

Cyclical Trauma

Slow Violence

Slow violence creeps. It can go years or even decades before becoming noticable. There is nothing about it which catches the eye, but it is deadly nevertheless. Slow violence is a chronic environmental stress and it is more often the wealthiest countries who contribute, but the poorest countries are the hardest hit. The perpetrators are rarely the victims.

With raised awareness of the consequences of slow violence, experienced constantly by the marginalized and avoided by the privileged, it becomes evident that there are forces that will continue to work to hide the consequences of their ancestors.

"By slow violence I mean a violence that occurs gradually and out of sight,

a violence of delayed destruction that is dispersed across time and space,

an attritional violence that is typically not viewed as violence at all."

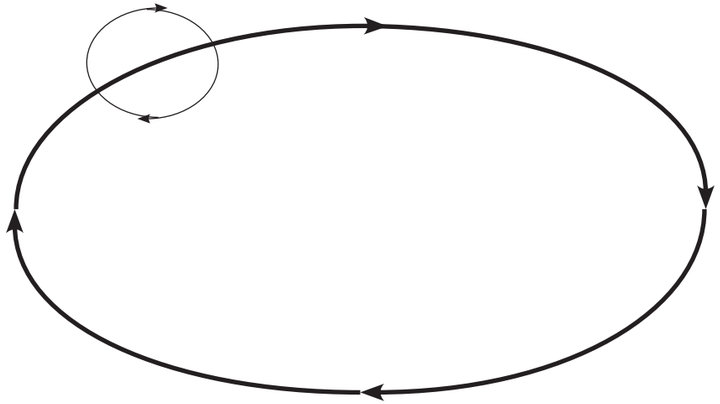
cite

Stress

1. a person's response to events that are threatening or challenging.

When a person experiences significantly stressful (therefore, traumatic) event, there is a chance the event has long term effects on them. This is known as **Post Traumatic Stress Disorder (PTSD)**.

Symptoms can include emotional numbing, sleep difficulties, interpersonal problems, drug abuse, or suicidal tendencies.



Long Term vs Short Term Cycles

2. an imbalance between environmental demands and human response capabilities.

Environmental stress is mostly chronic, or long term, stress due to limited possibility to escape or resolve the stress.

Selye (1956) proposed a pattern of response, known as the general adaptation syndrome (GAS) consisting of three phases; alarm, resistance, and exhaustion.

Alarm Stage
fight-or-flight

Resistance Stage
cope / adapt

Exhaustion Stage
system damage

Identifying Traumatic Cycles

Human-induced trauma, manifested over time, has depleted the Earth's natural resources and has caused irreversible damage. These traumas are understood to be examples of "slow violence" (Rob Nixon), where the perpetrators have used manipulation across spans of time to ensure their consequences fall at the hands of the most vulnerable across the spectrum of animacy. The slowness of these violences makes them invisible, but they are exposed in the studies of altered Earth's anomalies, manufactured landscapes, and abandoned infrastructure; all consequences of human waste. This constant stress is toxic, and has strained the systems and cycles of the Earth nearly to a point of destruction.

Bay of Nouadhibou Ship Graveyard
Ras Nouadhibou, Mauritania

Agbogbloshie
Accra, Ghana

Great Pacific Garbage Patch
Pacific Ocean

Identifying Traumatic Cycles

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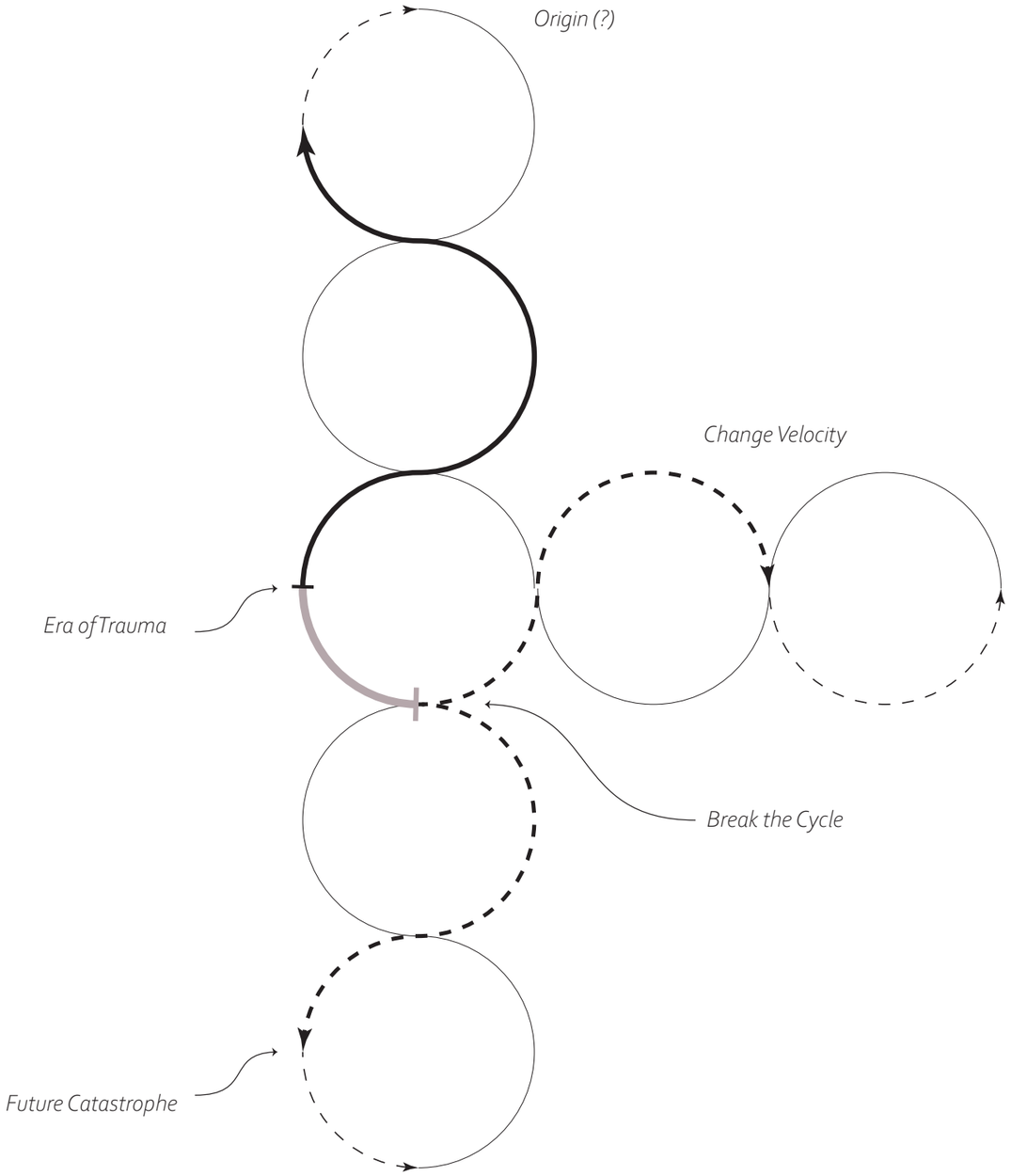

Through studying the history of extractive cycles and their consequences on varied scales of animacy, we seek to enact a change in the trajectory of humanity's self-induced chaos.

Our past is full of animate eras that have ended in destruction. The cyclical nature of the past helps us understand time as an additional dimension. Measuring the scale of human actions and their consequences over time exposes the underlying causes of the climate crisis. We could continue on our current trajectory to future catastrophe, but how can we use architecture to heal trauma through redirecting these destructive cycles?

Identifying Traumatic Cycles

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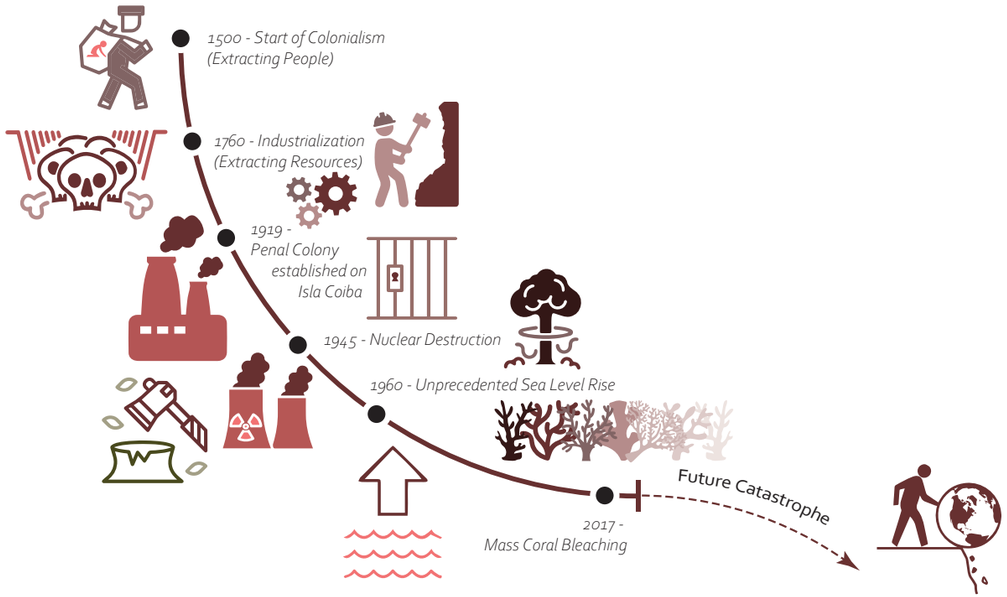
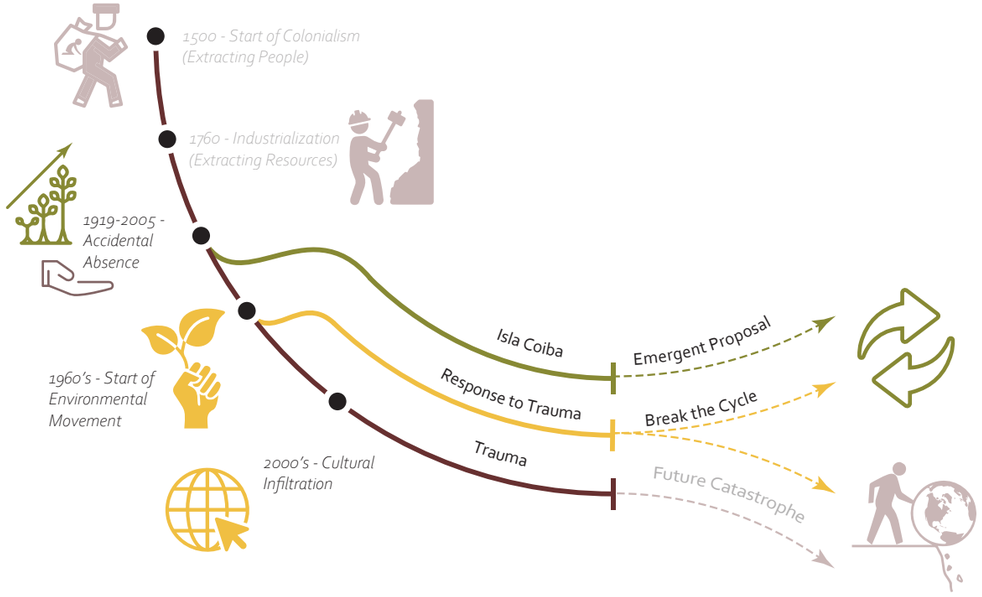
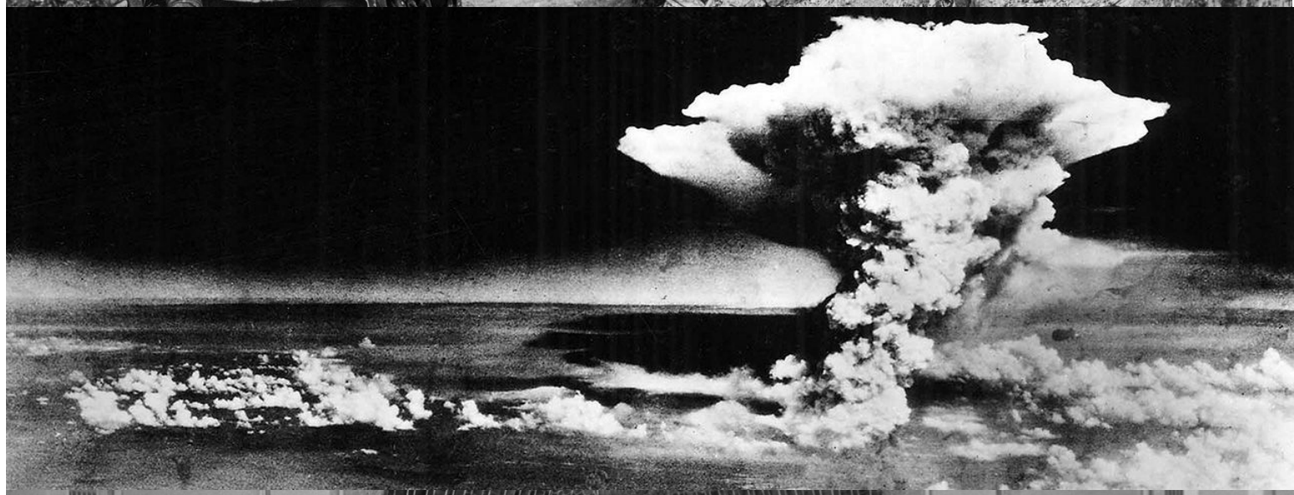




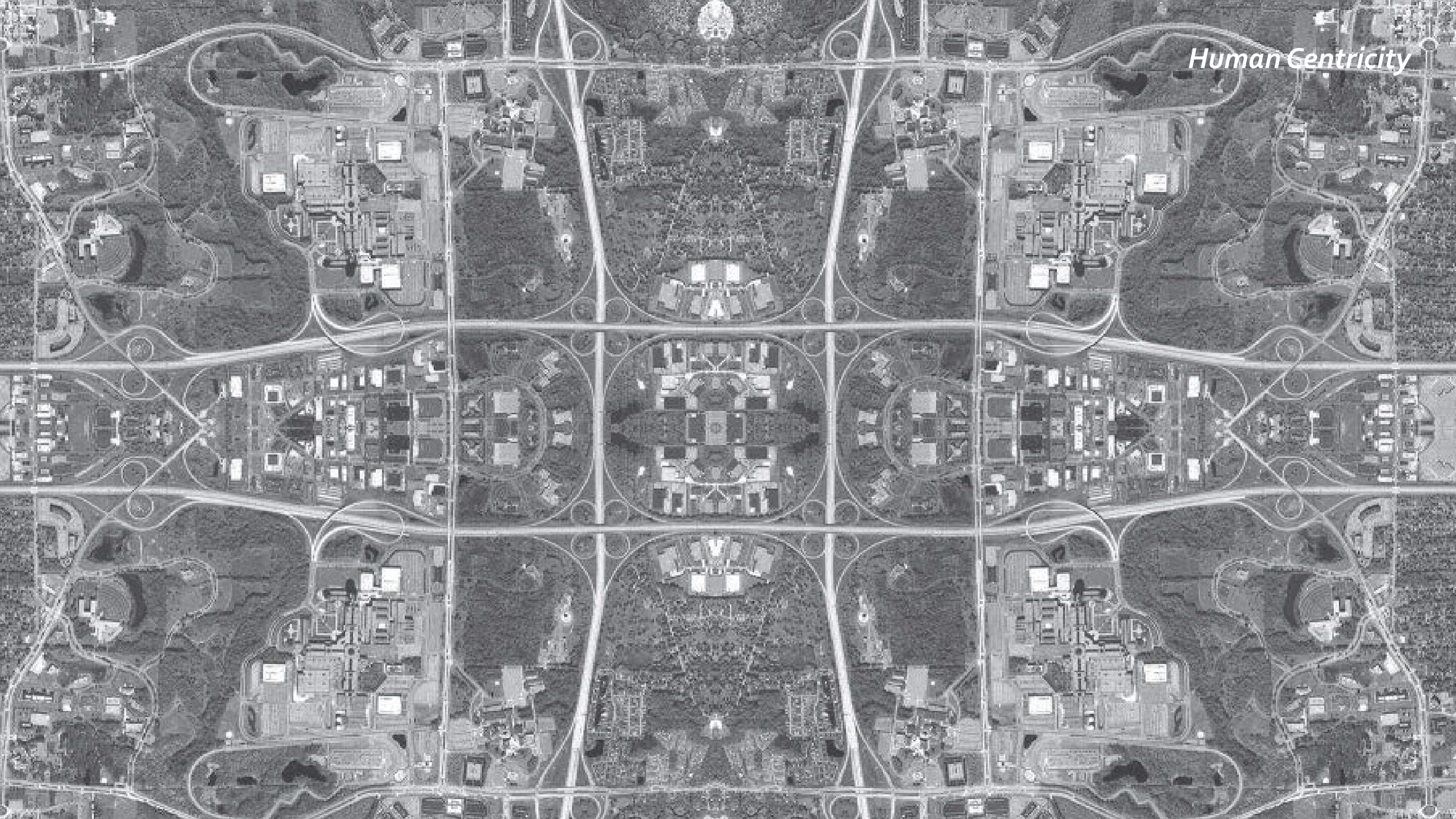
Although humanity is a biological entity like many other animate beings we interact with, our impact on the earth has consequences that seem irreversible, causing global stress. We are actively visualizing these slow violences by putting together evidence of environmental trauma that has been separated by time.

Era of Trauma



In attempts to access our pasts, we have been taught about our traumas as points in time. It is only in crisis that these traumas can be revealed. Understanding their long-term connections through history exposes the underlying environmental damage.

The failure to heal from our self induced trauma has fed the further manifestation of slow violences originating in colonialism and capitalism. Society continues to allow people to prioritize their own greed over the health of the planet and those affected by climate change. It also serves to protect these same people from any consequences of their selfishness, especially any loss in global power.


Human Centricity

The Grammar of Animacy

The beauty of animacy has been slowly forgotten, or in some cases never existed at all. In Potawatomi, a nearly forgotten Native American language, the native language of the Earth (animacy) is translated into a language that can be spoken and understood. The erasure of this language and culture is yet another casualty of colonialism. The language of animacy is so much more descriptive of the world than the Romance language masculine/feminine divisions.

It separates elements (and their words) into animate and inanimate. This specificity allows the world to breathe.

"A bay is a noun only if water is dead…

But the verb wiikwegamaa—
to be a bay—

..releases the water from bondage
and lets it live."

cite

Anthropocene

The global trauma caused by the climate crisis is experienced by a vibrancy of life beyond human comprehension. In order for a permanent detachment from the cyclical trauma, we must redefine our relationship with our environment and co-inhabitants to prioritize the Earth healing herself.

Many human centric points of view date back to Westward Expansion, where bias and discrimination allowed for dehumanization of native peoples and the false pretense of the discovery of land. Society is built on this pretense and has developed in an extractive way, continuously imposing any threat of consequences on future generations. Extraction is dependent on non-renewable resources providing for humanity's limited and temporary uses, which also has contributed to the massive amounts of waste and lack of technological advancements to address it.

"We are entering an age that might someday be referred to as, say, the Anthropocene.

After all, it is a geological age of our own making."

Alaimo, S. (2017). Your Shell on Acid: Material Immersion, Anthropocene Dissolves. In Anthropocene Feminism (pp. 89-99). Minneapolis, MN: University of Minnesota Press.

Accessing Trauma

Propaganda enforces societal ignorance and helps to hide these consequences through feeding human centricity.

Media serves to reflect a false reality to keep toxic systems in power, and this is due to the neglect to address our traumas.

Cultural Infiltration

Social Capitalism

The growth of internet accessibility and usage has allowed for this and more as our technological advancements have become extensions of the human existence.

Politicizing Environmentalism

Although the conservation of environments is essential to the planet's biodiversity, it is difficult to trust this will be prioritized over potential profits from ecological tourism. There has been success in protecting many sites worldwide, but there has always been massive pushback driven by capitalist priorities. These priorities have even presented themselves through research (i.e. institutions) despite any good intention of preserving the sites of our world that have been claimed naturally beautiful.

With so many natural sites being protected through organizations like UNESCO, we must examine the impacts on the local environments and communities that are intimately connected to these sites. The marketing of these picturesque locations lead to an incredible amount of tourism, with consequences like immense carbon emissions via global luxury travel and the exploitation of local communities that never see the profits driven by their home. UNESCO has succeeded in protecting sites from human destruction over time, but we also begin to question what makes some land more valuable and worthy of protection from ourselves than lands we destroy daily to maintain our lifestyle.

A global scale of change requires enforcement at a global scale, which has been attempted by the United Nations and has failed. Greta Thunberg's public demand for higher standards from world leaders shows that humanity is beginning to see that although we may never view the full scale of slow violences, we can still act to stop them.

"People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!

...The popular idea of cutting our emissions in half in 10 years only gives us a 50% chance of staying below 1.5 degrees, and the risk of setting off irreversible chain reactions beyond human control...

...a 50% risk is simply not acceptable to us — we who have to live with the consequences."

Greta Thunberg addressing world leaders at the UN Climate Action Summit.

To move forward from our traumatic past to a regenerative future of healing, we must fully invest in the powerful work of local activists.

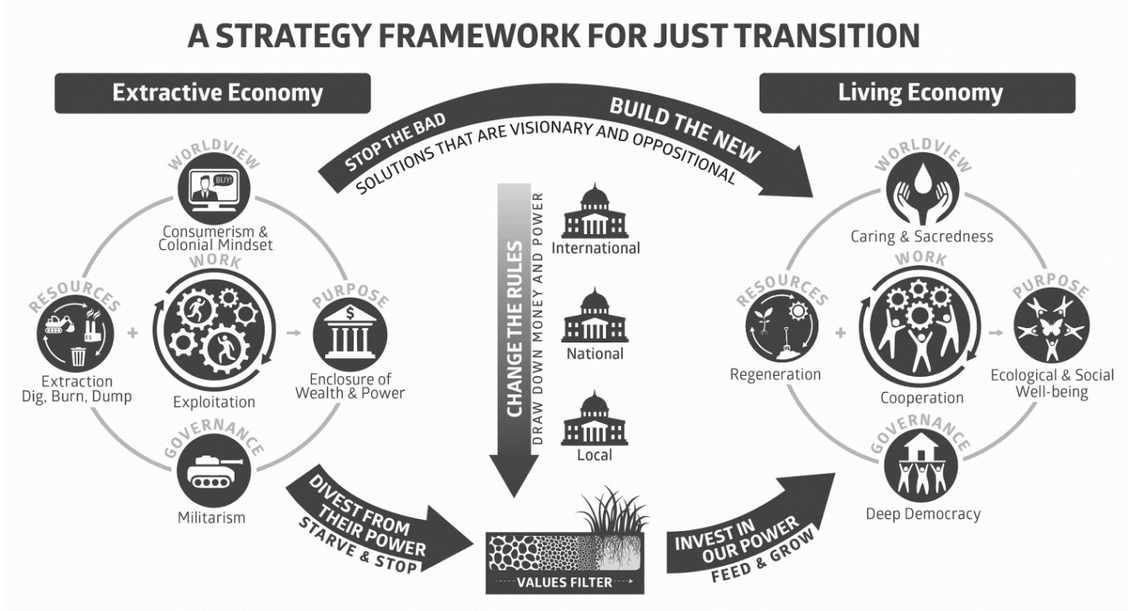
Environmental activism has clearly defined that there is a need and a way to ethically and "justly" transition to a sustainable way of cohabitation within the planet. As our traumatic past is manifested and embedded in the systems that uphold society, it's often difficult to envision the magnitude of change needed to divert the Earth's trajectory in any way. Because of this, there is immense value in "right now" plans as exposure is leading to the next step in our cyclical redirection.

Plans developed within the work of environmental justice have a clear methodologies outlined to be able to move away from the ways of life that are killing our planet and many of its inhabitants. More time and effort is wasted attempting to reinvent research that has thoroughly been done before. The question becomes less of how to begin and more about how to further solidify our role in supporting these movements and their proposed new way of life.

Just Transition

As a principle, process, and practice, the Just Transition embodies a shift from an extractive economy to a living economy. The Just Transition and environmental justice as a whole is deeply rooted in the civil rights movement. Founded by labor unions and environmental justice groups, the Just Transition defines the work being done and to be done on defining a transition away from polluting industries. This is in alliance with frontline communities, who are the communities most affected by the systemic environmental injustice that these industries profit from.

Constantly challenged by society's mainstream environmental movement that has failed to understand or address injustice caused by slow violences, the movement prioritizes bottom-up organizing, centering the voices of those most impacted, and shared community leadership. Although the focus is on labor justice, these categorical transitions apply directly to the future of architecture.



Worldview - Consumerism & Colonial Mindset to Caring & Sacredness:

Colonial architecture has been established, celebrated, and continues to be studied in architectural programs today while praising the colonizer Star-chitect. Their success disregards how they embodied colonial values, where there was no care for any life outside of their narrow sight. Understanding what it means to decolonize architectural discourse and practice comes from dismantling these practices. We must depart from monumentality and star-chitecture to actively engage with architectural design primarily as a means to help care for all forms of life. Decolonizing architecture leaves a potential for architecture to become more than a boundary between human inhabitants and the Earth.

How can the factors of a Living Economy be reflected in architectural design?

Governance - Militarism to Deep Democracy:

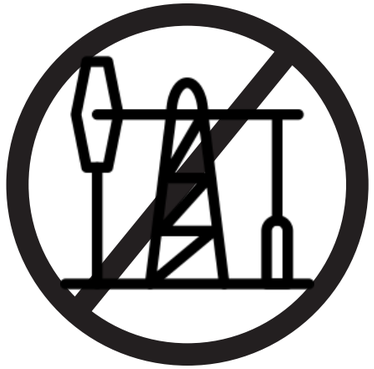
Architecture has often been used by governance as a tool in maintaining systemic injustices. A transition from militarism challenges architecture made in the name of military training, imprisonment, etc. as it is forced to now celebrate and prioritise the power of community over ties to our toxic past.

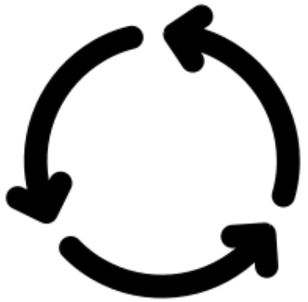
Resources - Extraction to Regeneration:

This transition is one that perhaps has already begun as we look more closely at locally sourced resources, recycled materials, and sustainable construction materials. However, our future must call for the complete end of the dig-burn-dump cycle, not a superficial trend. The movement to design sustainable architecture has shown that sustainably sourced material is still seen as one of far too many options, regardless of a vast knowledge of many materials' ecological toxicity in content or production. We should continue to encourage material innovation, but with far more prioritization of the materials' lifespan (ability for reuse), toxicity (production or material contents), and source (location).

Purpose - Enclosure of Wealth to Ecological & Social Wellbeing:

The transition in our purpose from enclosure of wealth to our wellbeing is less visually specific than others discussed, but has such an incredible potential impact on the future discussion around programming spaces. Public architecture especially would change drastically, as a shift in public resources and more collaborative lifestyles can lead to community spaces that do not engage in exclusivity and discrimination based on race, income, and/or gender.





When discussing environmental justice and activism, it's also important to emphasize there is a clear tie to values and perspectives that have been nearly erased as another brutal casualty of colonialism; Indigenous values. The power, beauty, and strength in these values lives in the Indigenous revolutionaries that are still fighting to heal from the horrors of colonial ancestry and their modern manifestations. Some of these revolutionaries are known as the Red Nation; a group of Indigenous feminists who believe in "radical relationality."

Among their accomplishments is the publication of the Red Deal, a movement-oriented document written from the perspective of Indigineous movements that have been at the forefront of the push for environmental justice. Of the three part document, Part Three (Titled "Heal Our Planet") in particular is successful in its directive and clarity as it discusses detailed principles, individual and group plans of action, and areas of struggle. These are developed off the main goals of the Red Deal that have been translated to the Green New Deal; clean and sustainable energy, traditional and sustainable agriculture, land, water, air, and animal restoration, and enforcement of treaty rights.

Context

The End of the World

We argue that context isn't a mere square footage or list of measurements. Within the multitude of dimensions that can define context, we consistently overlook time; a scalar measurement far less digestible than an x,y,z. Understanding the relationship between time and context is difficult because time and context aren't simply interchangeable, but are crucially complementary. Context analysis requires measures of time and its consequences. Time illustrates an otherwise incomplete image of context and the animacy it embodies. It is because of this relationship that context can be not only understood but genuinely embodied through occupation with high awareness, mutual respect, and sense of belonging. Our contexts do not belong to us, we belong to our contexts.

By understanding ourselves as animate beings within a larger context, we can see we are a part of a network of cycles of life at infinite scales and quantities across the dimension of time. Our connections are so critical to maintain for the health and safety of ourselves and therefore, our context. We are connected through animacy, through time, and we argue we also can be connected through healing.

Salvador Dali, The Persistence of Memory (1931)

Future Catastrophe

"The slowness of climate change is a fairy tale, perhaps as pernicious as the one that says it isn't happening at all, and comes to us bundled with several others in an anthology of comforting delusions: that global warming is an Arctic saga, unfolding remotely; that it is strictly a matter of sea level and coastlines, not an enveloping crisis sparing no place and leaving no life undeformed; that it is a crisis of the "natural" world, not the human one; that those two are distinct, and that we live today somehow outside or beyond or at the very least defended against nature, not inescapably within and literally overwhelmed by it;"

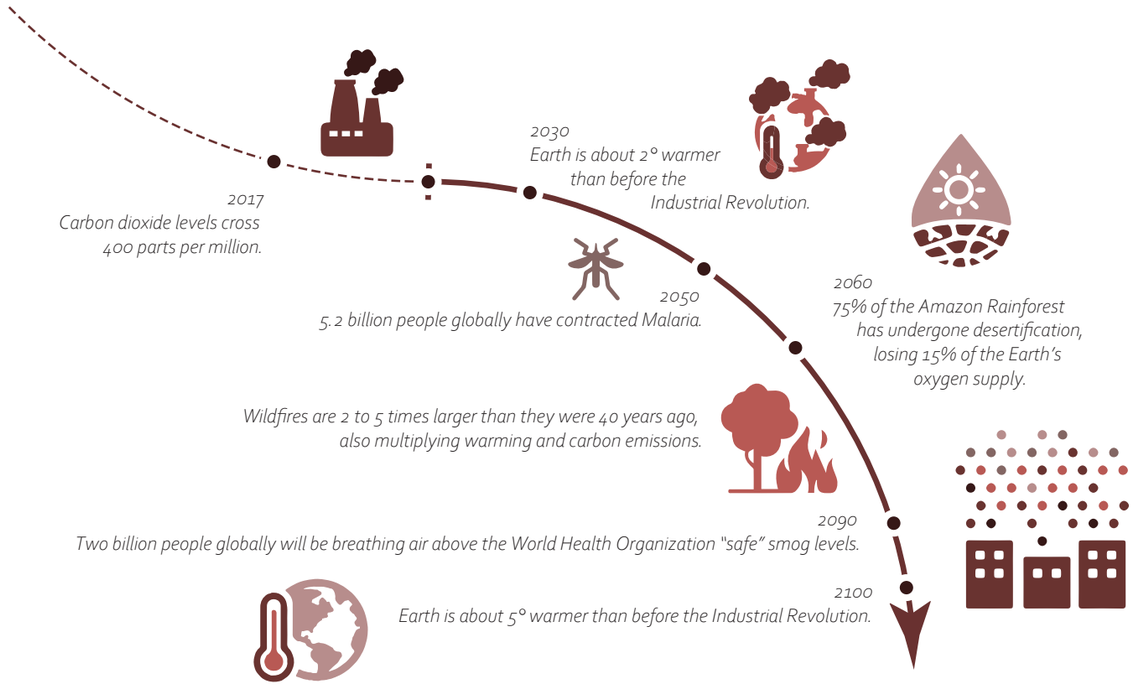
Wallace-Wells, D. (2017, July 14). The Uninhabitable Earth, Annotated Edition.

Awareness of the slowness of trauma allows for intervention. We're now aware that we've reached a point of global exhaustion, caused by a loss of hope in changing the systems that created this chaos. Potential future consequences of a carbon based economy continuing without change are outlined in David Wallace-Wells' **Uninhabitable Earth**, all overwhelming in their quantity and ability to manifest themselves.

By 2060,
75% of the Amazon rainforest will have undergone desertification.

By 2090,
2 billion people globally will be breathing air above the WHO safe level.

By 2100,
We will hit 5 degrees of warming and the lands around the equatorial band may no longer be habitable at all.



Reflective Culture

The Medium

WALL-E


The Maze Runner Series


Interstellar

Pop culture's dystopic perception of life on Earth post-climate crisis destruction engages with the conflict of how to return to a normal that no longer exists. Often by dramatically demonstrating potential consequences of extractive-based human life, These environments exist in fictional media and are recognized more as the end of the world versus the consequences of their actions that exist already. These examples focus on the human experience of these consequences and neglect almost all nonhuman forms of life. This reinforces the non-human being perceived as savage and deadly; *animate or not.*

Accidental Paradise

Isla Coiba, Panama

Isla Coiba, Panama
7.65°, -81.70°
500 km² / 120,000 acres

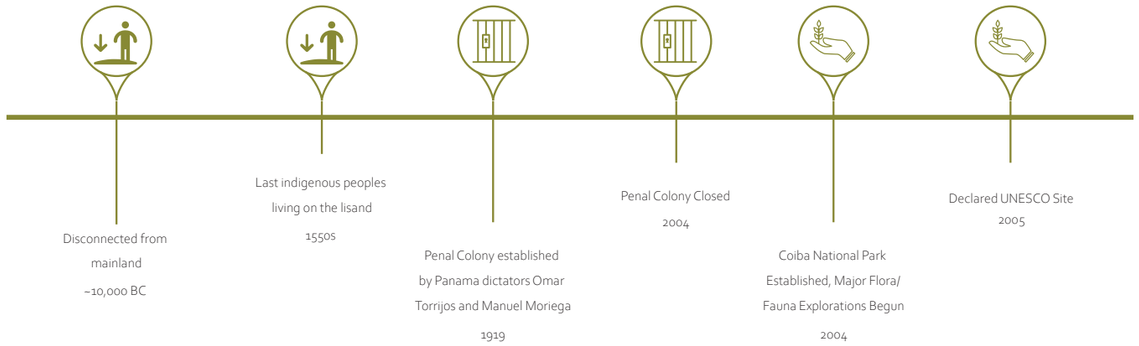
The last known indigenous inhabitants of Isla Coiba date back to the **mid-1500's**, who likely ended up captured as slaves by Spanish conquistadors.

The island was assumed to be uninhabited until a prison colony was established in **1919** during the rule of Panamanian dictators Omar Torrijos and Manuel Noriega. Prisoners sent to the prison were known as "Los Desaparecidos," or "the disappeared,"because many prisoners were buried in unmarked graves or dismembered and fed to the wildlife.

In **1998**, Coibita, a small island north of Coiba, became the site for a research station for the Smithsonian Tropical Research Institute for the establishment.

The prison closed in **2004**.
A year later, it became a UNESCO World Heritage Site.

Isla Coiba



Located off the western coast of Panama, Coiba exists as a sanctuary for approximately 1,450 plant species, rare animals, and coral reefs off its shoreline. This geographic location is the reason a number of the species on the island are endemic, meaning they only exist on Isla Coiba.

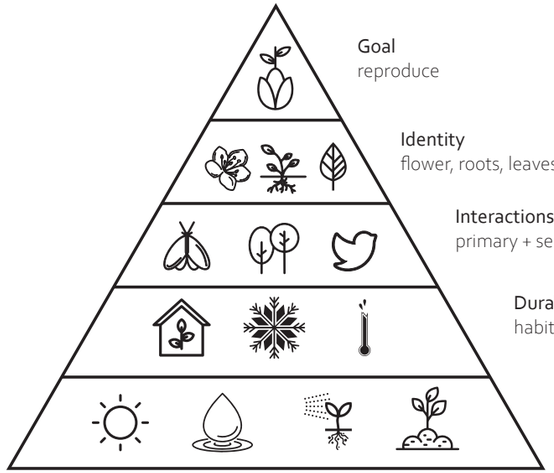
Incredibly, the only major change in the environment that could have caused such a drastic transformation in the ecosystem was the disappearance of humanity from 80% of the island. However, it's important to note that there are humans allowed on the island, but it's kept to a restricted maximum of 60 people at a time. Compared to the island's footprint, humanity takes up far less space, light, and air than in its traumatic past.Referred to as an "accidental case of conservation," the socio-political history is healing through the flourishing ecological growth caused by human absence.

Human Absence

Isla Coiba proves that flora and fauna are capable of flourishing quickly when left undisturbed. It is critical to understand the value of human absence in environmental recovery in this case study, investigated through the analysis of endemic species and their needs to understand what they require from their environments..

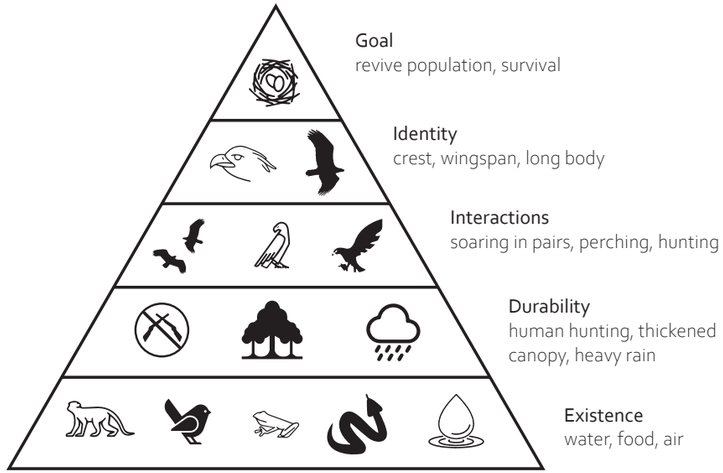
Phytolacca Rivinoides is a variety of pokeweed native only to South and Central America and grows in damp thickets with medium amounts of light. It is a perennial, scrambling, woody shrub vine. Most parts of the plant are extremely poisonous to humans in the mature form; however, the young plant has been shown to have some medicinal value. A mature plant has a vibrant red stalk and stems and has a thick, whiteish tuber. The berries are eaten by a variety of small birds, insects, and mammals. Phytolacca Rivinoides can grow up to five meters (sixteen feet) tall.

Morphnus Guianensis is an endangered species with its most consistent population existing on Isla Coiba, Panama. The bird's body, approximately 84 cm in length, provides key survival tactics for them. This includes their sharp eyesight, that is sensitive to movement and allows them to pierce through the tree canopy and spot their prey. Their broad, rounded wings and very long tail are aerodynamically proficient and help the birds maneuver through the environment. With ranging sizes in prey, their powerful legs and long talons help them hunt. They tend to soar over the canopy of the forest when hunting, in pairs or alone, scanning meticulously for movement.



Pokeweed

Phytolacca Rivinoides

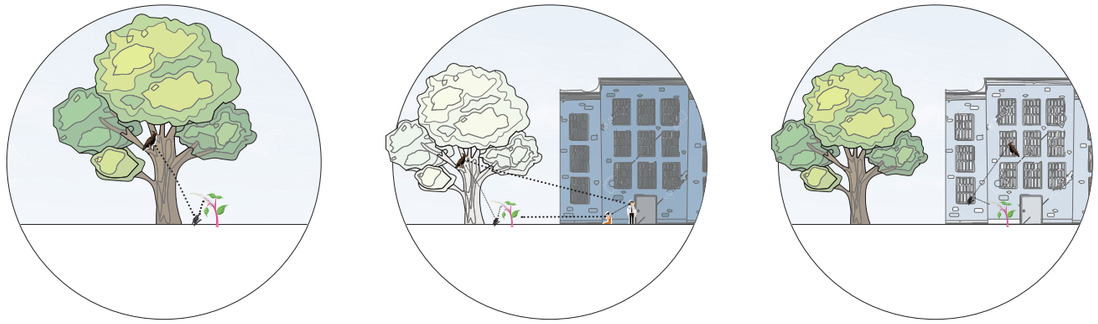


Crested Eagle

Morphnus Guianensis

Cycle Disruption

On Isla Coiba, the Venezuelan Pokeweed provides food for small birds and mammals, which are eaten by the Crested Eagle, who spreads seed for the plants to reproduce. Before colonial inhabitation, this natural cycle of "wild life" existed in isolation from humanity and was a complete cycle. But when the island was built into a penal colony, that cycle was interrupted. Not only was the prison cruel and toxic to society and to the occupants, it was physically toxic to the island and its original inhabitants. Parts of the original habitats were destroyed, and the eagles began to be hunted by the humans. However, when the prison closed, life was once again able to thrive in new habitats created by remnants of the human hand and the cycles returned to their original relationships.



Pre-Human Toxicity
Unknown

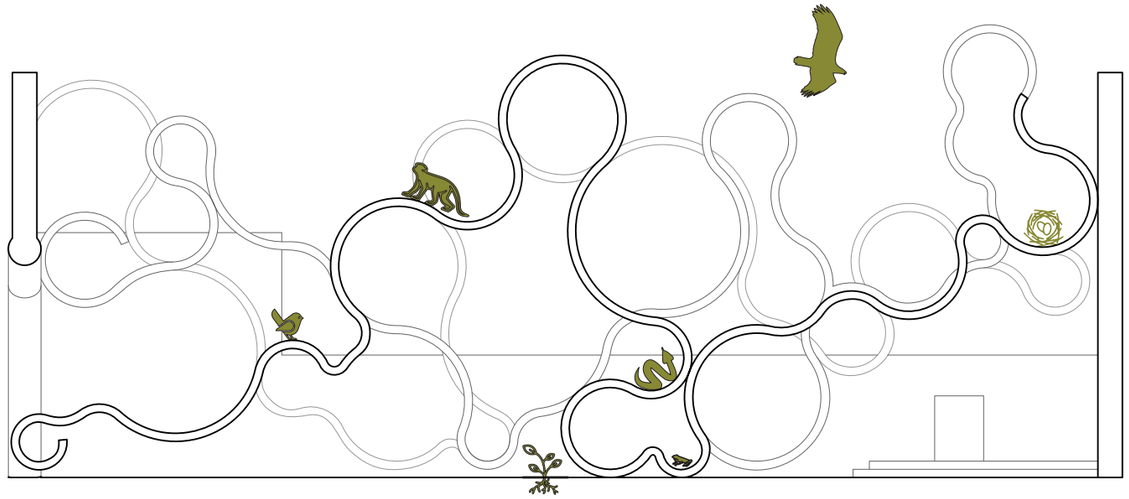
Human Intervention
Cruelty

Post-Human Remains
Hope

Accidental Paradise: Emergent Proposal

An abandoned church could provide infrastructure for a habitat that shelters the pokeweed and provides a nesting space for the crested eagle. It also enables small nesting creatures like other small birds and mammals to co-inhabit with the other two species.

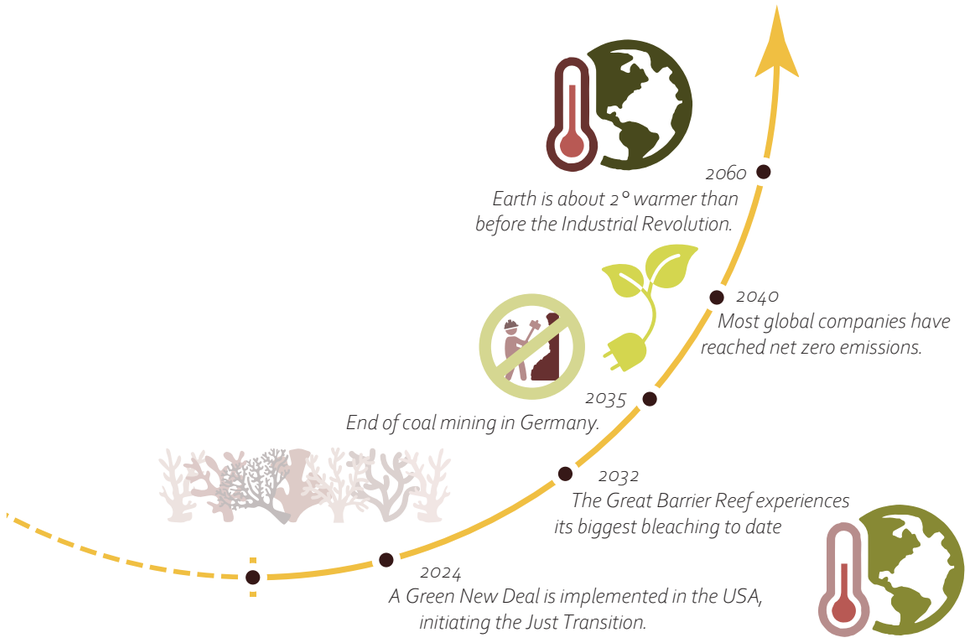
This hypothetical structure could create porosity at different scales to provide a sanctuary for both the crested eagle and the phytolacca rivinoides. The geometry provides for the needs of the various life forms present within the site context.



With the ability to understand architecture's impact on maintaining past cycles of trauma and exploitation, we can project a future where architecture's abilities reflect the needs for a future of regeneration, reconnection, and recovery.

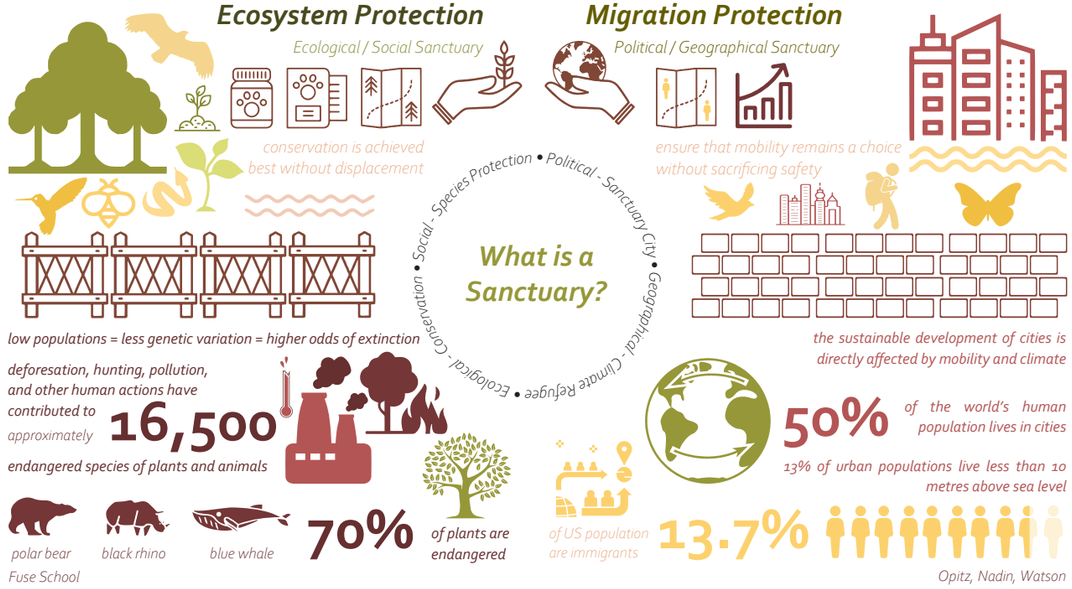
How can we use architecture to heal trauma through redirecting destructive cycles?

How can we use architecture to heal trauma through redirecting destructive cycles?



Human-induced trauma, manifested over time, has depleted the Earth's natural resources and has caused irreversible damage. These traumas are understood to be examples of "slow violence" (Rob Nixon), where the perpetrators have used manipulation across spans of time to ensure their consequences fall at the hands of the most vulnerable across the spectrum of animacy. The slowness of these violences makes them invisible, but they are exposed in the studies of altered Earth's anomalies, manufactured landscapes, and abandoned infrastructure; all consequences of human waste. This constant stress is toxic, and has strained the systems and cycles of the Earth nearly to a point of destruction.

We are actively visualizing slow violence by putting together evidence of environmental trauma that has been separated by time. We propose to proactively identify and design for protection from the consequences of climate change by creating spaces for restoration.

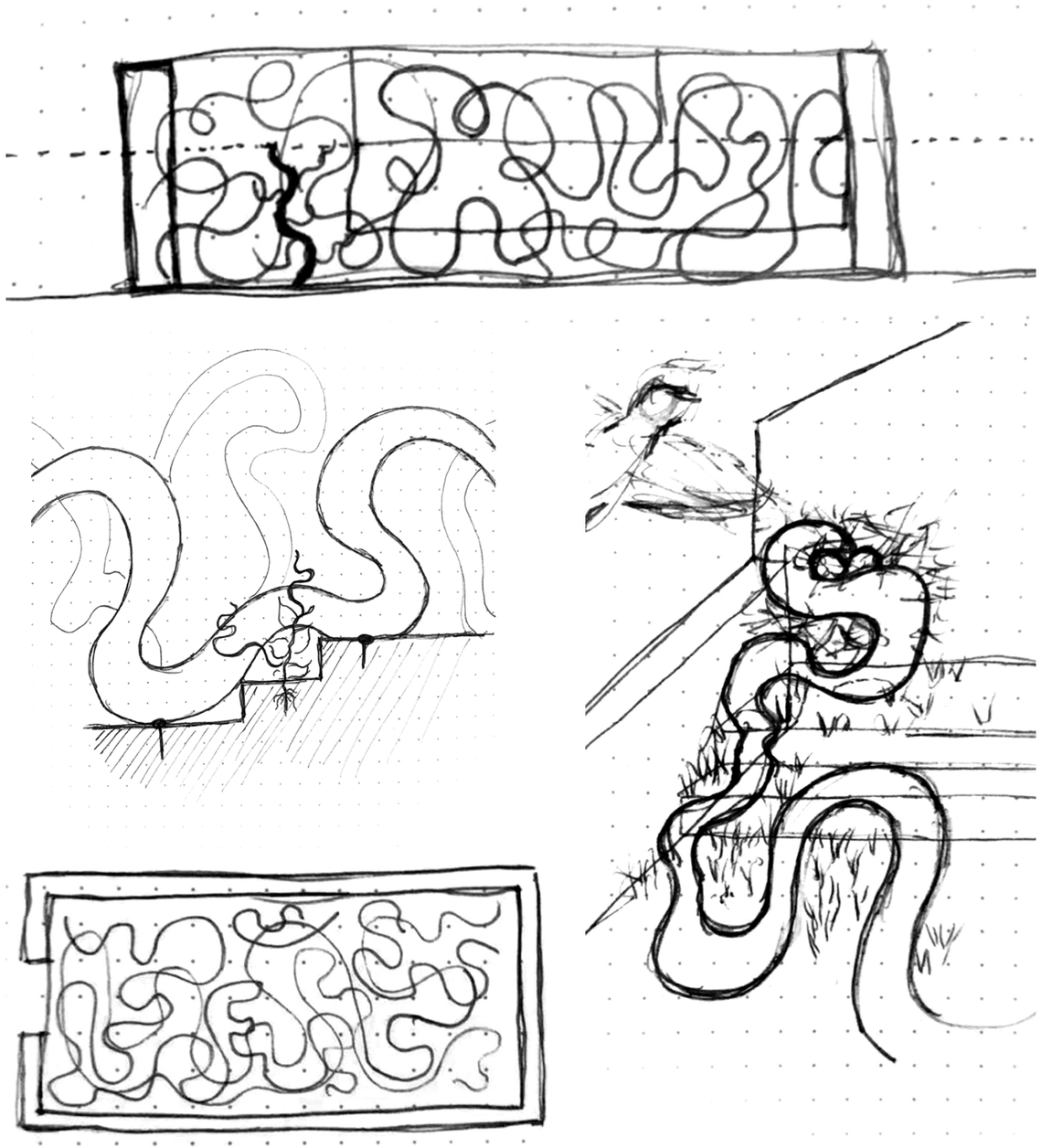


Restoration

As discussed in Alaimo's Shell on Acid, the Anthropocentric view of Earth recognizes that humanity has become a geological agent rather than simply a biological one. Although humanity is a biological entity like many other animate beings we interact with, our impact on the earth has consequences that seem irreversible, even as of today.

Within environmental psychology, the term "restoration" refers to the experience of psychological and/or physiological recovery stimulated by particular environments and environmental configurations. Although often discussed in studies of the health benefits of nature (i.e. biophilia studies), it is the criticism of the Western-focused views at the core of restorative environments research that led to the development of new theories that acknowledge context, access, and cognition.The core theories' studied restoration by studying social psychology, while modern theories study humanity's relationship with nature as a biological agent of change.

Restorative environments can also be used to heal ecological trauma, aiding in environmental recovery. We will need a new form of sanctuary; a method of containment as protection from the symptoms of slow violences. Factors like extreme heat, decreased air quality, and destroyed ecosystems will continue and require a new form of sanctuary; a method of containment as protection from the symptoms of our slow violences.The consequences of global warming will cause displacement globally, with millions of homes left abandoned and billions of life forms needing habitats. Sanctuaries can serve to combine these needs to systematically support restoration by providing internal boundaries for cohabitation, safety from environmental circumstances, and aid in the ecosystems' rehabilitation.



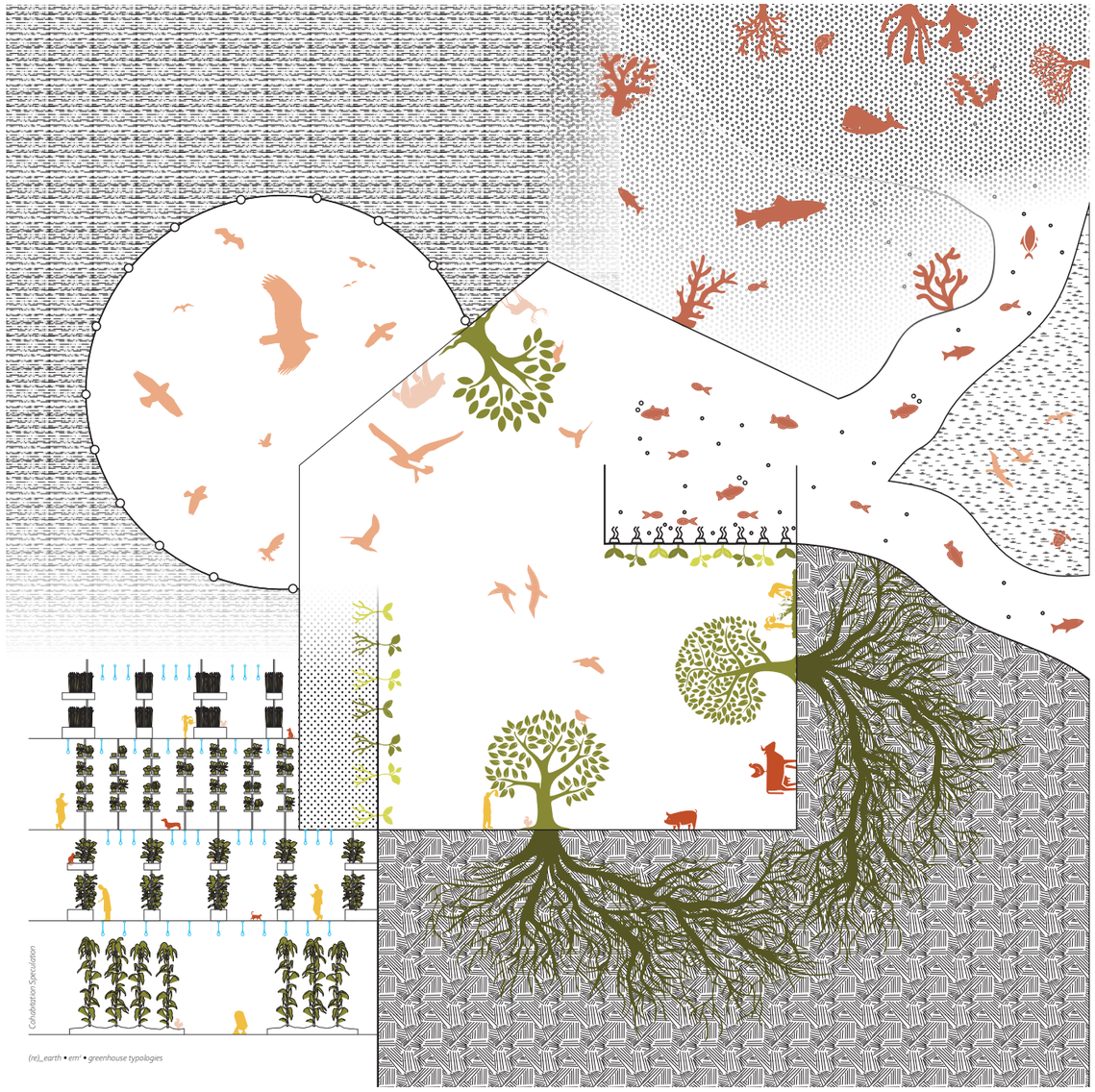
Restoration

cont.

Perceptual Fluency Account (PFA):
Works around the central assumption that natural environments are processed more easily than urban settings, contributing to their "restorative potential." This is because the visual brain is more easily able to comprehend the structure of visual information in natural scenes, rather than in built environments. Design studies of this visual information includes fractal geometry, arguing that natural scenes contain more familiar information than urban scenes.

Connectedness to Nature:
"Starts from the observation that people gain a sense of purpose and self identity in life by feeling that they belong to the natural world." Feeling emotionally connected to nature is an identified coping mechanism in studies of the beneficial effects of nature. This is a more active thinking, not automatic or unconscious, causing a desire to uderstand purpose outside of one's self.

Micro-Restorative Experiences and Instorative Effects:
Small scale interactions with nature, including seeing nature through a window, in a book, on television, or in a painting or drawing, also introduce fractal geometry to discussions of restorative environments. The theory focuses, however, on the distinction between quality and quantity of green space. Quality of green space outweighs quantity as accessibility and usability are able to provide restoration to the most people in the most diverse ways.



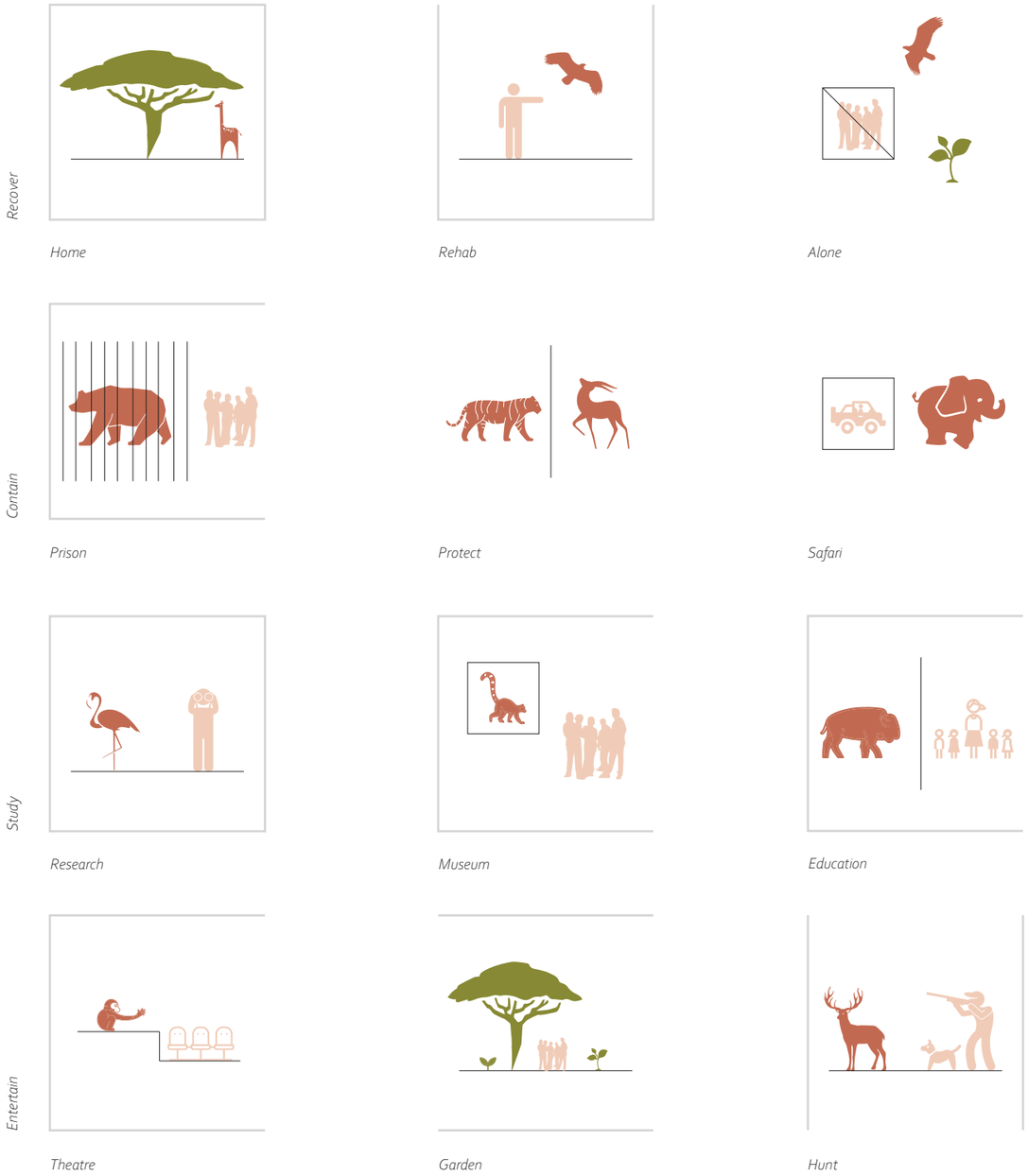
Containing Animacy

"the Anthropocene must be thought with the multitude of creatures that will not be reconstituted, will not be safely ensconced, but will, instead, dissolve."

Alaimo, S. (2017). Your Shell on Acid: Material Immersion, Anthropocene Dissolves. In Anthropocene Feminism (pp. 89-99). Minneapolis, MN: University of Minnesota Press.

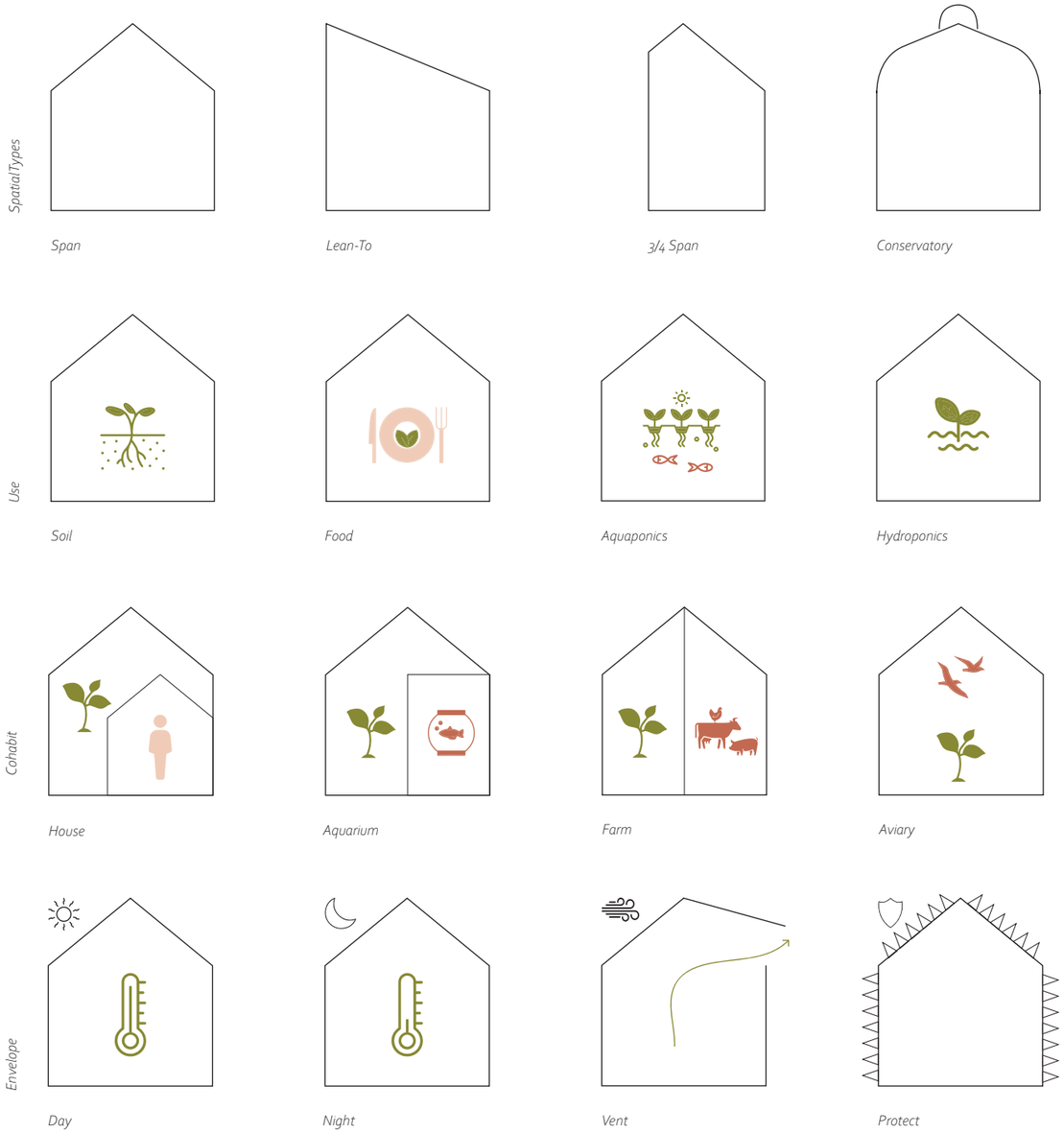
Factors like extreme heat, decreased air quality, and destroyed ecosystems are irreversible and require a new form of sanctuary; a method of containment as protection from the symptoms of our slow violences. In the past, attempts to provide protection across the scale of animacy have usually been fighting for conservation, often in the form of national parks or protected land rather than long term displacement of life from original ecosystems. Many rehabilitative services prioritize this, unlike the capitalist-driven means of capturing life like exploitation, exhibition, or trophy hunting.

All of these means of interacting with animals seem to formally manifest themselves similarly, as many spaces and/or programs may be meant for protection and conservation but rely on capitalism to sustain and maintain the facilities providing that service. This line is one that continues to be debated because of the ethical challenges in trying to design for beings that we cannot communicate with in the way humans communicate with each other.



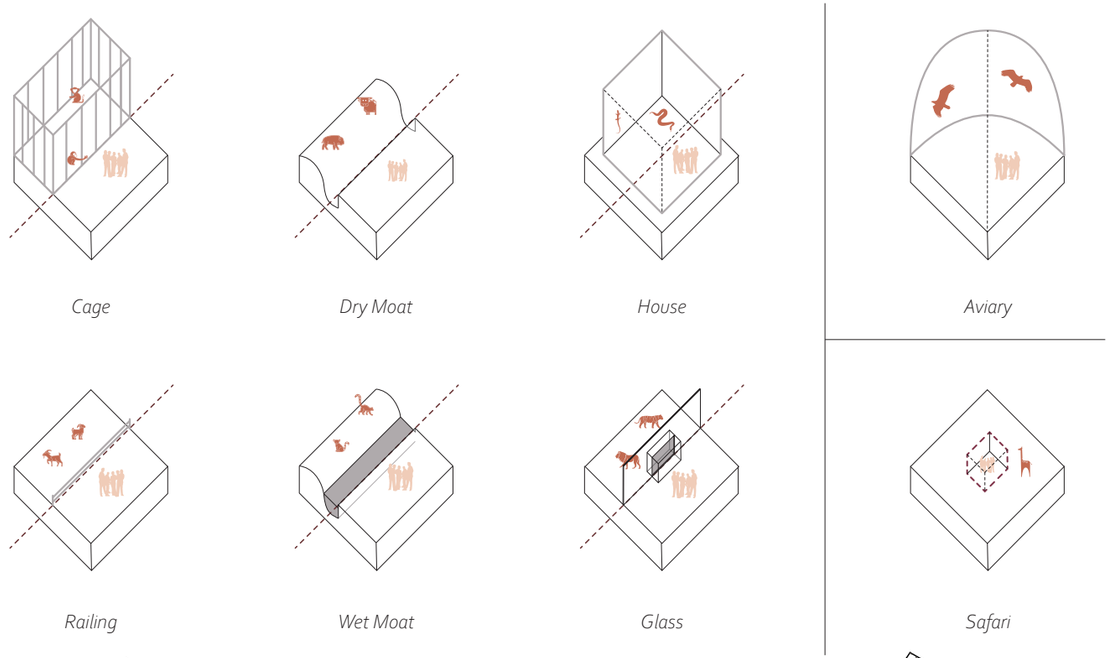
Containing Animacy

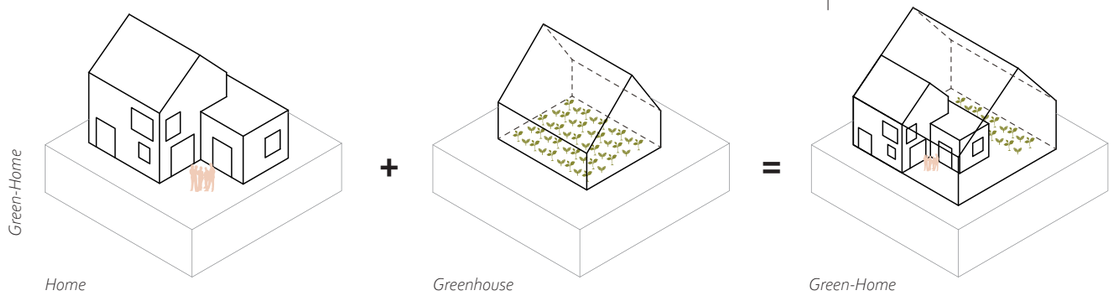
cont.

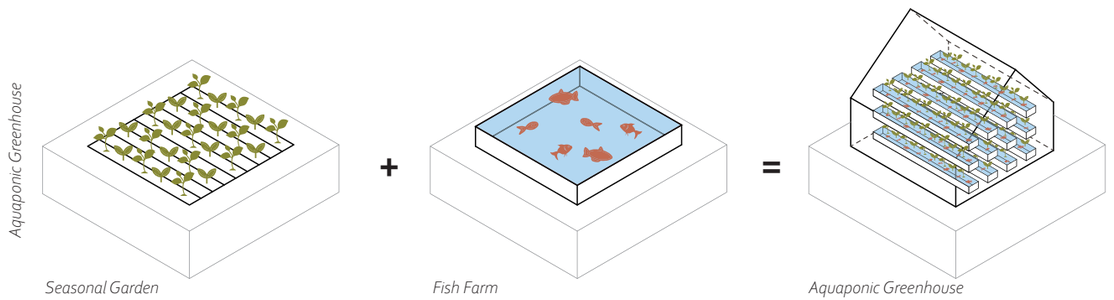


Humanity views our relationship with animacy very differently when looking at plants and greenery, seen in studies of the greenhouse. Humanity's biggest contribution to the relationship between the human and plant life is providing the needs for survival. It is easier for humanity to envision this cohabitation because the needs of greenery rarely invade the desires of the human.

Internal Boundaries







Due to these studies, we've chosen to focus on studying the internal relationships within containment, understanding how the built environment has indicated boundaries between humans and other animacy. Improving inter-animate relationships can solve many of the problems seen in the Biodome and other studies of containment as it is no longer a result of punishment or exhibition. It is about cohabitation and co-survival.

Successful cohabitation calls for explorations of flexible boundaries and how to build an environment of mutually beneficial systems. As we envision a reality that is familiar, but radically altered, what is the role of architecture?

How can we provide protection while encouraging adaptation?

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