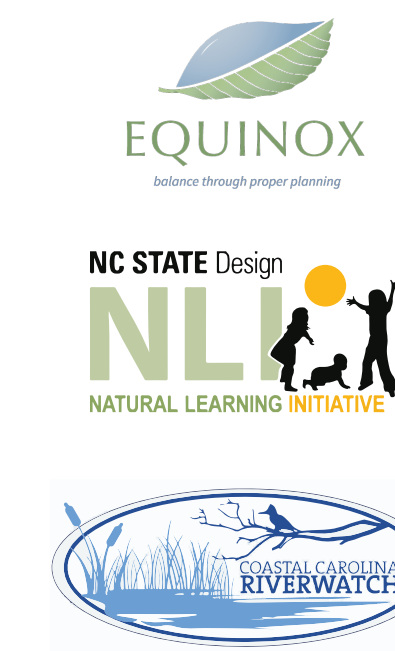


Impactful Scaling Strategies:

Exploring Different Proven Scales in which Landscape Architecture Can Create Sustainable Futures

Noah Weaver - Masters of Landscape Architecture + Environmental Planning

The threat of climate change is felt from the backyard to a global level. When addressing this challenge, a multi-scalar approach is needed to mitigate and reverse the effects of climate change. Currently my research has focused on the local site, regional, and state + national scale. Through these different scales, a network or system of climate-adaptive measures can be implemented. The site and local scale can create impact from a grassroots level. The regional scale connects local scales together creating a stronger network and system. Finally the national + state scales can create impact from a broader structural level. These measures address problems related to climate change resiliency, human and nature cohabitation, and community outreach and education.



Themes

Cohabitation

Historically, our city designs have prioritized the need of the human, thus contributing to the Anthropocene. Currently our living areas are dominated by cars and gray infrastructure. We must now embrace an eco-centric approach, where humans and nature coexist. For instance, urban planners can enhance skyscrapers with green roofs and vertical gardens, resulting in biodiversity and cleaner air.

Climate Change Resiliency

As the planet experiences rising temperatures and increasingly erratic weather patterns, it becomes imperative to acquire the knowledge and adapt in vulnerable regions. Forward-thinking adaptive strategies that incorporate green infrastructure can effectively mitigate the adverse effects of climate change.

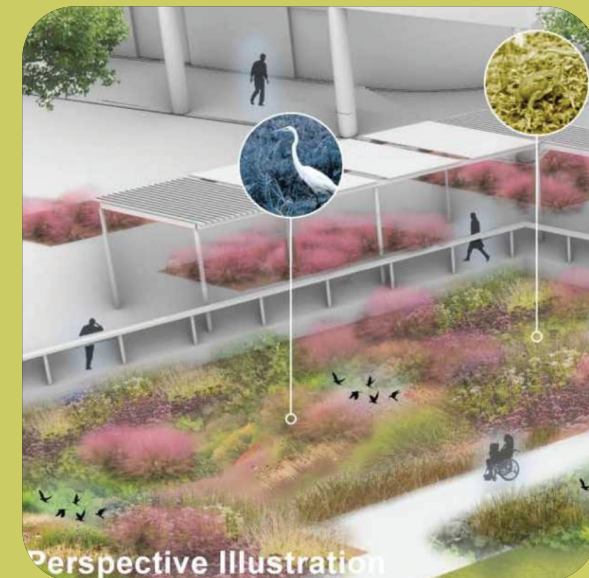
Community Outreach & Education

An involved and knowledgeable community advocates and strives for a better environment for all. Providing the opportunity for citizens to connect with their environment gives autonomy and power for them to positively impact their communities. Utilizing concepts like participatory design processes invests people in their built spaces.

Site + Local

Duke Putnam Gardens

Located on Duke's Campus, this space joins together faculty, students, and staff with the surrounding ecosystem of a basic mesic piedmont forest. An edible and herb garden provides food for human users, and dispersed pollinators and native plants provide food for local animals. A central rain garden captures excess runoff and turns that space into habitat.



- Utilizes a native and diverse planting palette to provide food and shelter
- Overlaps landscape functions like stormwater detention with human desires for rest and aesthetics

Battleship Park

Located in Wilmington, North Carolina along the Cape Fear River is the future battleship park. Through engaging the 5 senses, local history is uplifted, visitors are educated, and climate resilient observation methods are established. Through designs based on sensory observation, researchers and citizen scientists can observe and react to change occurring from climatic shifts and high tide sea level rise.



- Citizen science creates an educated community and engagement with the senses increases memory and change observation
- Sinking and Elevating methods used through grading and green infrastructure to work with water, not against it

Natural Learning Initiative

Research with the Natural Learning Initiative explores the ways in which food insecurity, childhood growth and development, and habitat space can be explored through early learning centers located within Wake County. Providing assistance in design and education of gardening and outdoor health strategies.



- Knowledge of how food is grown creates a comfortability with vegetables at a young age
- Participatory design methods are utilized to involve the community in their space

Regional

Western NC Greenway

The 100-Mile State Trail will span across the Western North Carolina Region. It will connect Asheville to Morganton and provide a variety of hiking, biking, and nature trails. This project creates multipurpose corridors which provides for safe transportation of humans and local ecology. Planted along this corridor will be a variety of native species that provide food and habitat for migratory species.



- Connects to a broader series of human and nature-based networks
- Visualizations used with client to show possibilities and emphasize the possible connections

Eco-Industrial Park

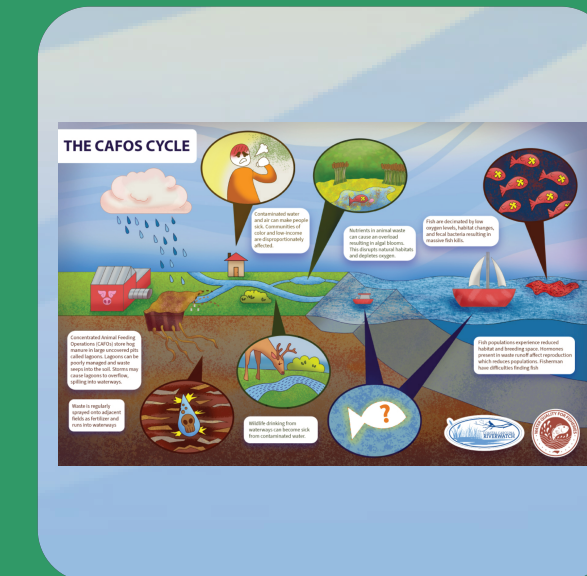
Exploring how the traditional model of an Industrial Park can be transformed to become functioning for regional environment, community, and economy. Generative testing models are being utilized to measure the carbon emissions involved in creating the project to reach carbon zero production. A circular economic model is being developed exploring the ways in which businesses can share resources and utilize waste produced within different stages of production to reduce waste.



- Transforming a traditional pollutant model into a sustainable one
- Adaptive strategies to heat, energy usage, and storm resiliency

Water Quality For Fisheries

Communication campaign with Coastal Carolina Riverwatch seeking to educate the Carteret County community about the impact of pollution of their waterways. Explored the concept of water cycle graphics and expanded to depict different forms of pollutants impact on water quality. Collaborated with the commercial and recreational fishing communities.

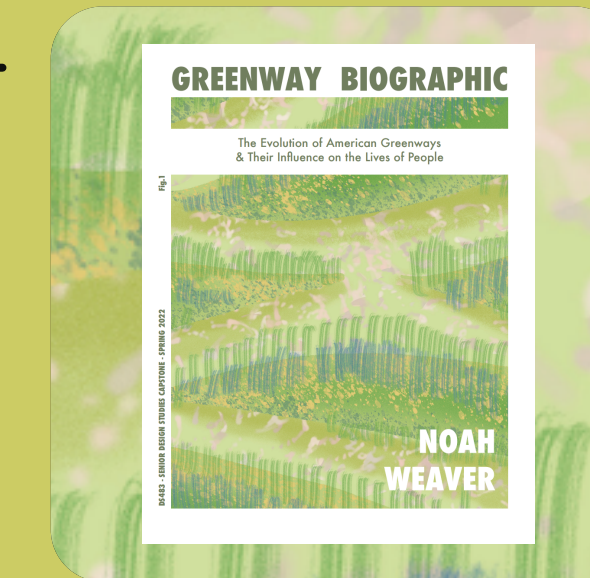


- Campaign responds to informational barriers that climate change and environmental health pollution typically have
- Explored how visualizations and graphics can communicate complex ideas.

State + National

Greenway Biographic

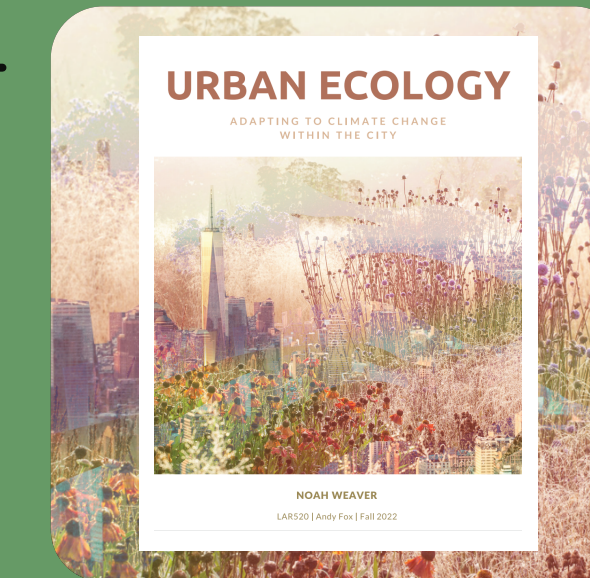
This capstone paper explores the history of Greenways across the United States and the trends that occurred within each era. By understanding the context of the past and applications of this infrastructure, future uses are explored and proposed.



- Interconnectivity is key to providing access to resources
- Systems based approach enables a holistic design process

Urban Ecology Paper

Evaluating the ways in which urban ecology and green infrastructure can be used across US cities to provide climate resilient strategies. Systems of green infrastructure based on the patches, corridors and matrixes model are evaluated along with their effectiveness. Case studies along with success stories are analyzed for the ability to be replicated.



- Green and Blue Infrastructure provide more for humans and nature than gray infrastructure
- Grassroots movements are effective in creating positive ecological focused legislative change

Buncombe State Park

Research and visualization conducted with Equinox Environmental. Created a timeline exploring the cultural and environmental history of a Buncombe county Ranch which is currently in the process of becoming a state park. Connections to historical change from an environmental perspective are emphasized for how people have interacted with the environment. This research is to be utilized for moving forward in the planning process along with community stakeholder meetings.



- Visuals utilized to summarize broad swathes of history
- Show interconnected relationships between seemingly unrelated phenomena

Key Terms

- Landscape Architecture** - The profession and practice of designing outdoor spaces, including parks, gardens, urban areas, and natural environments, with a focus on aesthetics, functionality, and sustainability.
- Green Infrastructure** - An approach that uses natural or nature-based systems, such as green roofs, rain gardens, and wetlands, to manage stormwater, enhance biodiversity, and improve environmental quality in urban areas.
- Systems-Based Design** - A design approach that considers the interconnections and interactions between various elements of a system to create holistic and sustainable solutions.

Reflection

Through this program and my mentors, I've learned the power of interdisciplinary climate-focused teams and systems-based design. As a designer, I'm now part of a holistic approach, visualizing and implementing solutions in the built environment that uplift and restore both people and nature in the face of climate change. By addressing climate challenges at every level—local sites, regions, and state/national scales—we ensure that no community is left vulnerable. Within my work I have observed the need for designing with both humans and nature on an equal playing field. We are still designing with humans at the forefront, and we need to shift our thinking to hold nature equally to ourselves. This shift from a legislative, cultural, economic, and societal level will begin to help make the drastic changes we need to make to aid the environment. Our collective efforts create a resilient network where grassroots initiatives and broader structural strategies work together to safeguard our sustainable future.

Next Steps

Moving forward I want to dive deeper into animal corridor design approaches that can be used to ensure biodiversity. Further my education into green-infrastructure and carbon neutral building practices, like Sites AP or LEED AP. Continue using visualizations as a method of educating and engaging people who interact with the landscapes that I am designing. Finally I want to explore the next part of the scale which involves looking at a Global level of adaptation strategies.

Acknowledgements

Thanks to the Kenan Institute for providing me the opportunity to work with an interdisciplinary cohort. Special thanks to Amanda Mueller and the rest of the team for their dedicated work to ensure the success of this program. My gratitude to Equinox Environmental for hosting me this summer and acting as a shining beacon for how a firm should positively impact a local community. Lastly, I'm thankful to Anne Spafford, my advisor, for her insightful guidance, inspiring conviction, and boundless enthusiasm.