

**Salt Flats, Finger Islands, and Ponds:
Reading the Landscape through Infrastructure in Tampa, Florida**

By

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Submitted to the Department of Urban Studies and Planning
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ABSTRACT

We are moving through strange times with the environment. In the greater Tampa Bay area, people commute to the Everglades to hunt pythons, iguanas fall from the sky, and planners build desalination plants to turn saltwater into freshwater. This thesis is an inquiry into the beliefs and ideas that have led to these environmental happenings. It looks at racial capitalism, the teleology of progress, the frontier, and ideas about nature; all of which people have used to create a material infrastructure of residential development in the landscape. Through a historical and cultural analysis, this thesis looks at how tourists, homeowners, critters, planners, environmentalists, engineers, activists, and regular people operate within the bounds of these ideas. Some of their actions and imaginations are limited by what they know and believe, some people work with the natural world to operate and survive in the 21st century, and others take actions to formulate new ways of life. The infrastructures of our times are a product of history and dominant ways of knowing, this thesis seeks to trouble western knowledge that has foreclosed other ways of knowing the natural world.

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Gratitude

In many ways writing this was a personal process to make meaning of my own relationship with the natural world. Jamaica Bay is a landscape I held in mind while writing. It is a place that I try to give back to because it gives me meaning and relief. This paper is also the product of a reaction to *some* popular culture writers that left me unsatisfied. Where I felt they offered words about capital and human reactions to it, but without a framework or historical inquiry. The writing below is a snapshot of a moment in time in my thinking about culture and the environment. I am constantly un-learning and re-learning, and my thinking will change. There are topics I would like to expand on and questions I still have. With patience, time, and relationships I will continue to revise.

Writing is a collaborative project. The “weekend fun” WhatsApp group – Gina Lee, Jasmine Martin, Chenab Navalkha, and Ruthy Gourevitch were critical to my writing. Together we had many conversations, sometimes spiraling, to help me understand the complexity of human relationships with the natural world. Tess McCann provided me with literature to read and gracious edits. I learned so much from you and look forward to working together in the future. In a seminar with Kate Brown, I learned how to love writing, unravel history, and the wonder of plants. Eric Huntley shared joy and taught me how to critically examine archives, artifacts, and stories. Devin Michelle Bunten was a cheerleader and believed in me, especially when I did not. I am grateful for her detailed comments and her insights. Stephanie, Max, and my parents offered their endless love and support. And like any thesis, this would not have been possible without the dedication of scholars and their written words. Reading, while difficult, often feels like a treasure where I get to step inside another person’s years of labor in a short period of time. It often feels like cheating. These people helped me, but all errors are my own.

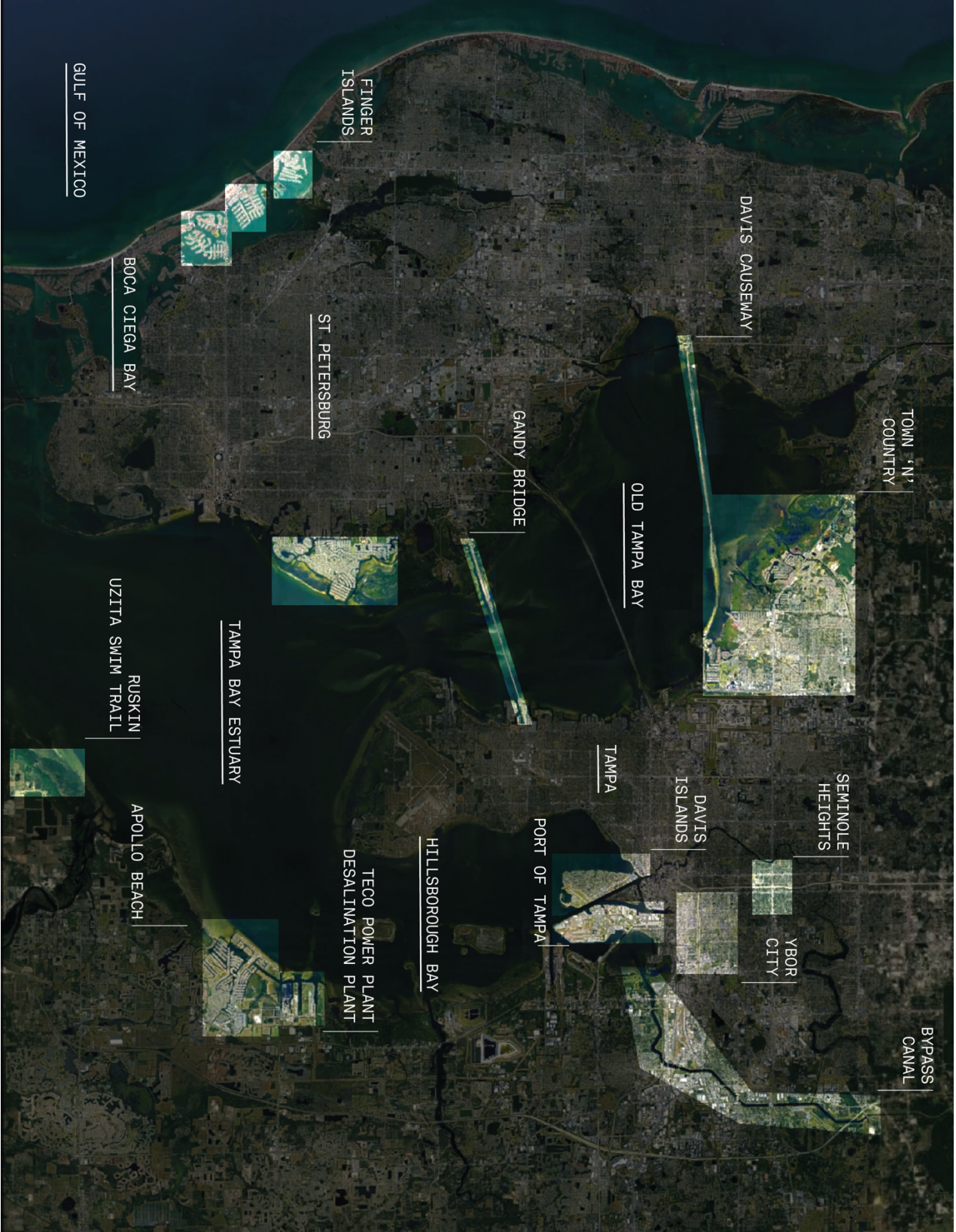


Figure 1 Map of Tampa Bay

Introduction

In 2019 the Tampa Bay Times highlighted two women from St. Petersburg, Florida, Beth Koehler and Peggy Van Gorder, who regularly drive down from the Bay area to the Everglades to hunt for the Burmese python.¹ Most experts believe the Burmese pythons established a reproducing population in the Everglades sometime after Hurricane Andrew, a category five storm in 1992, when a python breeding facility was destroyed and the snakes were released into the swamp.² Since then, the python has seized the Everglades. These two women roam around the Everglades' levees at night, looking for the hidden yet burgeoning python. The State of Florida pays the women \$8.25 an hour for their work, \$50 for each snake they capture, and another \$25 per foot beyond four feet. In the Tampa Bay Times article, the women expressed that they do not hunt the python to make a living but rather for their care for the environment. They are driven to save the life—the

¹ Pittman, Craig, James Borchuck, and Chris Urso. 2019. "Two women from St. Petersburg like to hunt pythons in the Everglades. We went with them." Tampa Bay Times. Tampa Bay, August 17. Accessed April 8, 2021. <https://www.tampabay.com/news/environment/2019/08/17/two-women-from-st-petersburg-like-to-hunt-pythons-in-the-everglades-we-went-with-them/>.

² Flintoff, John-Paul. 2019. *The Economist*. January 21. Accessed April 8th, 2021. <https://www.economist.com/1843/2019/01/21/the-men-fighting-floridas-python-epidemic>.

Eve Allen brought the python in the Florida Everglades to my attention and provided research on existing efforts to manage it.

foxes, racoons, and birds of the Florida landscape that the python has squeezed out. In Florida, environmental management means killing out of an act of care. It also means people and resources are mobilized by the state in a never ending-effort to manage the landscape.³

At the end of January 2020, temperatures in Florida dropped. It is not unusual in the greater Tampa areas, comprised of Hillsborough and Pinellas County, to see cooler temperatures, but for the green iguana, which has recently been migrating to the area from southern Florida, it was too extreme: the cold air froze their bodies and they began to fall out of trees. Southern Florida experienced an overwhelming rainfall of frozen iguanas. Green lizards sprawled on the lawns of grass and within the banks of canals. News reporters assured the public that the iguanas would thaw and move on, though, in the meantime, they should protect their heads and look up. The Tampa Bay iguana drizzle left many human residents wondering if iguanas would be finding homes in the Tampa Bay area and if the phenomena of frozen iguanas would become a frequent sighting.

Central west Florida is a watery world. The Florida peninsula's unusually flat nature appears to be resisting the current geological epoch, where the Florida Platform remembers the seas that once covered the land during previous glacial periods.⁴ Water lingers, simultaneously providing the basis for life but also haunting the planners, engineers, and residents of the region. There always seems to be too much water in central west Florida when and where technocrats and residents do not want it. Memories of hurricanes, sunny-day tidal floods during the king tide (an especially high spring tide), and heavy rainstorms with inland flooding beleaguer residents. At the same time, in the 21st century, there has been too little fresh water. In recent years, the spring dry season has been marked by extreme drought, prompted by more unusual rain patterns and land-use patterns that disrupt the watersheds cycles.

When reservoirs dry up, public utilities look underground for groundwater. In the 1970s and 1980s, this caused the "water wars" between Hillsborough, Pinellas, and Pasco counties as the three counties raced to pump the limited water supply. Together, the tri-county water authorities over-

³ Python hunting has also become a cultural and entertainment phenomenon in Florida, celebrated in television programs like the Discovery Channels *Guardians of the Glades*.

⁴ Floridas peninsula is a plateau of karst limestone that sits atop the Florida Platform, a tectonic plate. Florida's shoreline expands and contracts with rising and retracting seas. The seas are influenced by the volume of ice sheets during various geologic epochs. During the last ice age, Florida was as much as three times the current land area. Much of the existing landscape is shaped by the seas. High grounds are the sites of dunes from pervious geologic epochs. The limestone of Florida is formed by the remains of sea creatures and algae. As limestone erodes, the geology changes. There are many sinkholes, vertical shafts, and springs in the landscape caused by underground drainage systems and caves. Tampa sits on the lowlands of Florida. To the east is Florida's central highlands.

Allen, Ginger M, and Martin B Main. 2005. *Florida's Geological History*. Department of Wildlife Ecology and Conservation, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, Gainesville: University of Florida.

extracted fresh water below the surface. The lakes and swamps in the area dried up.⁵ As a 21st century solution to the over-extraction of freshwater and ongoing droughts, the newly formed Tampa Bay Water utility developed the largest desalination plant in the western hemisphere. A \$158 million project, using reverse osmosis technology, was built on the Tampa Bayfront and connected to the TECO power plant.⁶ Fully opened in 2008, the plant pumps water from the Hillsborough Bay, filters out sand, sediment, and salt by pushing water through a series of microscopic sieves into cylindrical filters to separate pure water from salt molecules. While partially solving the area's ongoing water shortage, the fix has a high energy demand and produces concentrated salt waste.

We are moving through strange times. Across the United States, people battle feral pigs and carp fish. Planners, environmentalist, and real-estate developers clash over where water should go. And, counties and municipalities develop large-scale, expensive, infrastructures to provide freshwater. The landscape of and the contemporary environmental happenings in Tampa, Florida represent the confusing, paradoxical, contradictory and bizarre ways of American life with the environment. I ask for a way to make sense of these environmental happenings. To begin a personal and certainly never-ending process of making sense of our times, this thesis looks at the history of the process of domination in the development of the Tampa Bay Estuary and the greater Tampa region. Examining history and culture allows me to begin to understand the logics and beliefs that led to the practice and the enduring structures that have led to these strange, perhaps delusional, times.

I look at the development of single-family waterfront homes along the Bayfront and the transition of development inland in the late 20th and 21st centuries. I see the development as a project to remake the landscape as infrastructure, an infrastructure consisting of the homes, canals, bulkheads, docks, roads, species, water, and land. This project articulates the backdrop of the collective human and the more-than-human lives that live, work, and play in and around the Tampa Bay. I argue that the project of developing single-family homes around the waterfront hinged on the logic of progress, produced by a society under racial capitalism. As such, the project did more than initially planned, asking humans and non-humans alike to navigate those changes. At some points, people ask nature to accommodate and at other times nature asks people to accommodate, flipping agency. Because racial capitalism is not just an economic system, but also an epistemology, a way of thinking and a way of knowing, people's responses to the changes are shaped and limited by their knowledge. This has set in motion a complex arrangement of management plans to sustain progress; like new infrastructures and environmental management

⁵ Pittman, Craig. 2017. "Desalination plant, reservoir helping Tampa Bay endure Florida's fiery drought." Tampa Bay Times, April 18. Accessed April 8, 2021. <https://www.tampabay.com/news/environment/water/desalination-plant-reservoir-helping-tampa-bay-endure-floridas-fiery/2320637/>.

⁶ Another environmental happening occurs next to the TECO power plant, in the winter months when manatees are cold, they come to the discharge canal next to the power plant for warmth. TECO has set up a manatee viewing center: <https://www.tampaelectric.com/company/mvc/>

programs. As a result, all of Tampan's are put in an orchestrated "dance with nature."⁷ I am interested in ordinary people who are obliged to take to the dance floor or those who want a different tune.

Progress narratives have materially shaped the American landscape. Single-family homes and highways reach across the lands. The engineering, carving and shaping the landscape has been at the expense of specific groups of people and the natural world in service of others. The landscape is stratified. Because this phenomenon is so universal in the American landscape, this research project could have taken place in virtually any developed landscape in the United States. Perhaps, a parallel drier case study in Phoenix, Arizona. The farms of single-family homes may lead Americans to believe the landscape is uniform. But seeing these landscapes as homogenous means falling victim to the attempted erasure of the landscape's deep history. The history shows itself, if one pays attention. Sometimes subtly, by the names of subdivisions that take on the old geomorphology or planation past.⁸ I choose to pay attention to Tampa's history. Tampa's contemporary environmental happenings can sound silly at times, but I attempt to hold both the seriousness of land and its past and present histories and its humor at the same time. I seek both a groundedness and a release.

I draw my evidence from two primary source archives: The University of South Florida Tampa Bay Estuary Oral Histories Project and the University of Florida's Ephemera Collection.⁹ The Tampa Bay Estuary Oral Histories Project is a collection of interviews of advocates, scientists, environmental stewards, and long-term residents of the Tampa Bay Estuary hosted by the University of South Florida. The interviews were conducted in 2015 by Dr. Ann Hodgson, an ornithologist and president of a small business on environmental research and planning. The oral histories provide a glimpse of the area's memory and the stories of people who lived and worked with the landscape. Like any archive, the selection of who is interviewed and what subjects are covered is driven by the curators and participants. The archive cannot provide a complete picture of all the lives along Tampa Bay, and it includes far less than it excludes.¹⁰ Notably absent are the stories of Black, brown, Indigenous, queer, and residents not actively involved in the Tampa Bay area's natural resource management and the critters that call the Bay home. In addition, the University of South Florida received funding from the Tampa Electric Company for the project, which raises further questions about the types of records that may have been excluded from the archive. Recognizing the limited nature of the oral histories and their political context, I, too, dance

⁷ Brian Cook, an Assistant Professor of Research at the University of South Florida School of Architecture & Community Design and Principle at Wide Open Office, in an informal conversation said, "Tampan's are in a dance with nature."

⁸ I think about the Cypress Springs, Canyons Creeks and Sugar Lands (named after the planation) of my childhood in Texas. The names of subdivisions in Florida take on similar patterns.

⁹ James G Cusick, the curator of the P.K. Yonge Library of Florida History Special & Area Studies Collection at the University of Florida in Gainesville scanned over 40 documents for this research. I am grateful for his time and generosity to make this research possible during the COVID-19 pandemic. Link to collection website: <https://cms.uflib.ufl.edu/spec/pkyonge/flephm/ephemera>

¹⁰ Weld, Kirsten. 2014. Paper Cadavers: The Archives of Dictatorship in Guatemala . Durham : Duke University Press.

with these sources to navigate the histories of the Tampa Bay Estuary. Throughout the paper, I lean on people like George S 'Skip' Gandy, a long-time resident and photographer and August 'Gus' Muench, a local crabber, to guide me. As a complement to the oral histories, I use a sample of documents from the University of Florida's Ephemera Collection, which consists of brochures, publications, maps, and souvenirs related to Tampa's promotion in the 20th century. In this case, I read with the archive to understand how people with resources imagined and promoted the Tampa Bay Estuary.

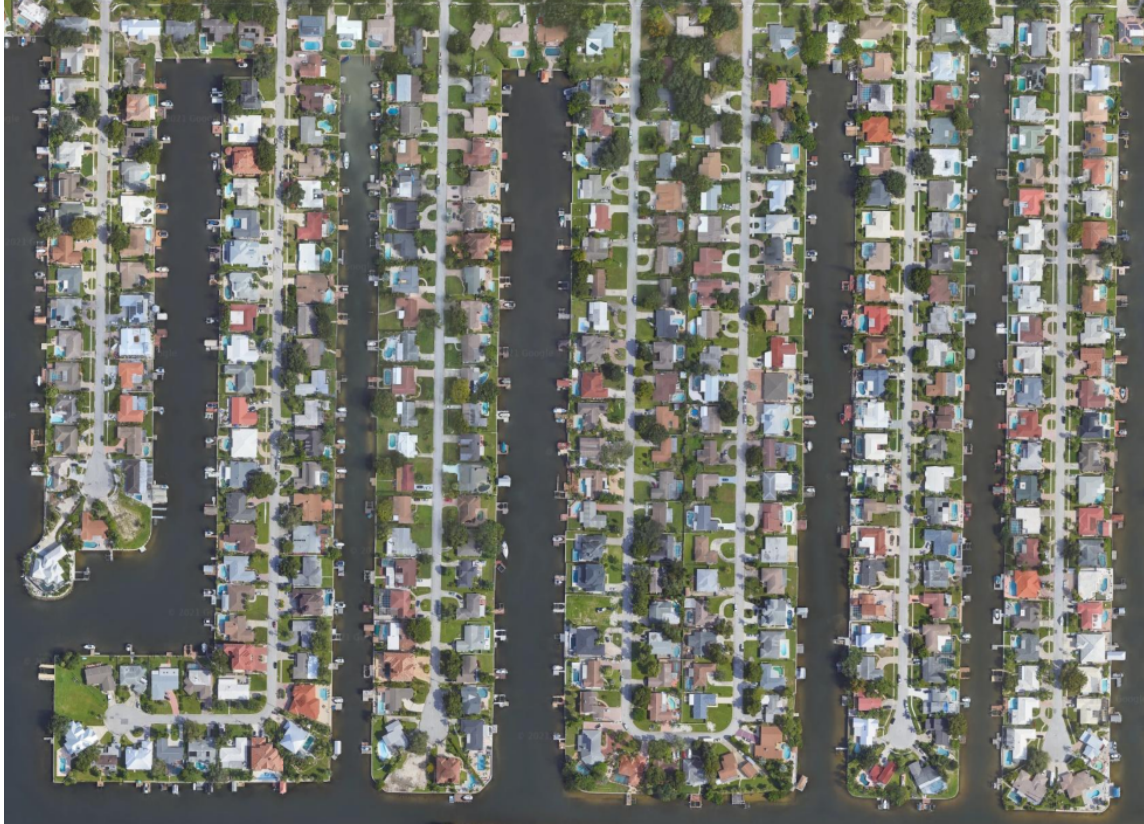


Figure 2 Aerial Image of Dana Shores, Tampa Florida – Google Earth Pro



Figure 3 Aerial Image of South Shore, Riverview, Unincorporated Hillsborough County, Florida – Google Earth Pro

Thinking Through Infrastructure.

From an aerial perspective, the Bay takes on an engineered pattern.¹¹ Straight lines cut through the land. Rows of homes line the Bay with dividing canals. Backyards face the canals and their neighbor across the water. Inland, it seems like everyone somehow has a pond to look out on to. Together it creates what looks like a watery maze of infrastructure. We might think of infrastructure in a traditional sense: Tampa's ports, the railway lines that connect the phosphate mines to the Gulf of Mexico, the highways and bridges, and the TECO energy plant and associated desalination plant. Even the green infrastructure of the trees comes to mind. I ask us to think also think about the homes and landforms as infrastructure.¹² I draw my understanding of infrastructure and the landscape as infrastructure from scholarship in science and technology studies and cultural anthropology. These scholars have been exploring how infrastructure has been designed, built, and maintained and its relationship to social structures. Titles like Susan Leigh Stars, *The Ethnography of Infrastructure* and Maria Kaika's *City of Flows: Modernity, Nature and the City* sit in this scholarship. It is an expansive body of work that puts the built environment in conversation with political economy.

Anna Tsing's work is in this body of literature, where she looks at people's practices with the natural world within global commodity flows. She sees infrastructure as an outcome of capitalism. I rely on the narrow definition of infrastructure put forth by the editors of the digital project *Feral Atlas: the More-Than-Human Anthropocene*. The editors Anna L. Tsing, Jennifer Deger, Alder Keleman Saxena and Feifei Zhou, whose work is the spine of my research, refer to the term *infrastructure* as the "human-built landscape modification projects that emerge within social and political programs." The editors say that these human-built landscape modification projects "come to matter when they are part of broadly imagined campaigns to change landscapes in the interests of some kind of governance program," and offer the example of hole-digging. For example, "if a person digs a hole in his or her backyard, that might change the local ecology, but it only becomes an infrastructural project if some authority promotes hole-digging as part of its platform." Thus, central to infrastructure is the "structural features of anthropogenic landscape transformation."¹³

¹¹ I provided two aerial images of coastal and inland homes in Hillsborough county for a lack of words to describe the phenomena. See Figures 2 and 3.

¹² The term landscape as infrastructure has been used by landscape architect Pierre Bélanger who defines it as the convergence of the systems of public works, industrial activities, agriculture, waste generation, and the geological processes that underlie practices of urban development. His definition is both too broad and too specific for this thesis. I mention it as the reader may be aware of his definition.

¹³ Tsing, Anna L. , Jennifer Deger, Alder Keleman Saxena, and Feifei Zhou. 2021. *Feral Atlas The More-Than-Human Anthropocene*. Stanford University Press. <https://feralatlans.org/>. Quotes come from "Introduction to Feral Atlas."

I am looking at a project created by humans, that takes place in the material world, and is connected to a larger campaign.

Scholars have also explored how infrastructures interact with the environment. A traditional narrative of infrastructure says that infrastructure is an overwhelming force in creating environmental change. For example, a dam causes landscape flooding and displaces farmers. Anthropologists have been dissecting and flipping the traditional view by arguing that the environment also changes infrastructure. Kregg Hetherington, in the introduction of *Infrastructure, Environment and Life in the Anthropocene*, says that the environment has been seen as the "context" within which infrastructure is placed—the environment is in the background. For example, a bridge (infrastructure) is engineered and designed based on a landscape survey (the environment). Hetherington says that we cannot think of the environment as the mere context of infrastructure; there is a feedback loop of sorts between the environment and infrastructure. Infrastructure may shape the landscape in new ways or create new environments. For example, infrastructure may interrupt environmental processes, or the environment may interrupt infrastructure through natural processes of decay. The environment and infrastructure are intertwined concepts.¹⁴ The agency of nature as an actor in human projects is central to this thesis, where nature consistently challenges engineering efforts that attempt to dominate nature. The Feral Atlas does this by looking at what happens around infrastructures: jellyfish thrive, and radioactivity moves. They say that infrastructures create new environments.

Ashley Carse builds on the Feral Atlas's definition of infrastructure by defining it as a relational process between humans, nature, and infrastructure. He says that infrastructure is not a specific thing but is an ongoing process of relationship building.¹⁵ Infrastructure depends on people through capital and labor for its maintenance against the forces of wind, water and life.¹⁶ For Carse, life and landscape are connected to infrastructure. Infrastructure is quotidian. When the built environment is reworked based on shifting ideas of progress or maintenance, people experience this through landscape change.¹⁷ He also sees attempts to manage landscape as part of infrastructure, a process that forces people to have prescribed relations with the land.

I use these concepts to understand the landscape in Tampa, Florida. The landscape is a material infrastructure project, shaped by humans, connected to an idea or campaign, that interacts constantly with the natural world's rhythms, and is intimate with the all the residents and visitors of the area.

¹⁴ Hetherington, Kregg. 2019. "Introduction. Keywords of the Anthropocene ." In *Infrastructure, Environment, and Life in the Anthropocene* , 1-16. Durham: Duke University Press.

¹⁵ Carse, Ashley. 2014. *Beyond the Big Ditch: Politics, Ecology, and Infrastructure at the Panama Canal*. Boston : MIT Press. Page 4.

¹⁶ *Ibid*, Carse. Page 5.

¹⁷ *Ibid*, Carse. Page 8.

The Coastal Flatwoods.

To study the 20th and 21st development process of Tampa Florida requires understanding how post-slavery development in America, while not the same, is an outgrowth of plantation logic. People under capitalism have persistently differentiated groups of people and landscapes through domination to support market growth. This practice is spatialized in the contemporary landscape of Tampa Bay. Reading the landscape through infrastructure requires going back to the 18th and early 19th centuries, to racial capitalisms “wastelands.”¹⁸ The pronounced wastelands were the expanse of flatwoods, upland pine scrub, prairies, marshes, cypress swamps, and hardwood forests (hammocks) that interrupted the coastal flatwoods of central and southern Florida.¹⁹ I ground myself in racial capitalisms and plantation theory, I then examine how the process of domination initially unfolded in central west Florida’s so-called wastelands.

Under white supremacy, people and landscapes have been subjected to processes of classification. Sylvia Wynter, a Jamaican cultural theorist, explains the process of classification:

"But with the discovery of the New World and its vast exploitable lands that process which has been termed the 'reduction of Man to Labour and of Nature to Land' had its large scale beginning. From this moment on Western Man saw himself as the lord and possessor of Nature.' The one way transformation of Nature began. Since man is a part of Nature, a process of dehumanization and alienation was set in train. In old societies with traditional values based on the old relation, resistance could be put up to the dominance of the new dehumanizing system. In new societies like ours, created for the market, there seemed at first to be no possibility of such a tradition." ²⁰

In this quote, she bridges western man’s reduction of nature and humans together. Wynter’s uses the phrase “reduction of Man to Labour and Nature to Land.” She is referencing a conceptual conflict between western man’s understanding of people and land to that of Indigenous people and Black Africans who were brought to the ‘New World’ as slaves – they carried with them their cosmologies and understanding of the land from Africa. Wynter says for the slaves, “the land

¹⁸ Tess McCann shared Vittoria di Palmas work with me, we both look at so called “wastelands” in our thesis.

Di Palma, Vittoria. 2014. *Wasteland: A History*. New Haven and London: Yale University Press. Page 95

¹⁹ The coastal flatwoods are sandy, “infertile soils” that support pine trees, shrubs and grasses. Planters were less interested in the coastal flatwoods because they couldn’t grow cash crops. Instead, they considered it land for cattle and hogs. In Florida, the flatwoods were broken by tracts of upland pine scrub, prairies, marshes, cypress swamps and dense stands of hardwood forest, called hammocks.

Otto, John Solomon. 1983. "Hillsborough County (1850): A Community in the South Florida Flatwoods." *The Florida Historical Quarterly* (Florida Historical Society) 62 (2): 189-193.

²⁰ Wynter, Sylvia. 1971. "Novel and History, Plot and Plantation." *Savacous* (5): 95-102.

remained the Earth – and the Earth was a goddess; man used the land to feed himself; and to offer first fruits to the earth.” I put Wynter in conversation with Robin Wall Kimmerer, a professor and member of the Potawatomi Nation, who studies cosmologies of Indigenous people of North America. She says her people see land as a relationship. "Our lands were where our responsibility to the world was enacted, sacred ground. It belonged to itself; it was a gift, it was not a commodity, so it could never be bought or sold."²¹ For her, Indigenous groups saw (and continue to this day) to see land as identity, a site of connection to ancestors, the home of nonhuman kinfolk, a medicine cabinet, and a source of all life. While, Kimmerer cannot fully represent all indigenous relationships to the land, her articulation of land relations provides an example of the conflicting land ontologies with western ways.

A high-level and brief introduction to capitalist societies' tenets shows where and why these two approaches clash. Fundamental to capitalist society is the market, where commodities — goods and services produced for a profitable exchange — are bought or sold.²² In capitalist societies, things that are essential to human life and have profound meaning to people are considered commodities and produced for profitable exchange.²³ Land, or enclosed nature, is one of these things that becomes a commodity. By using man's labor to "improve" nature, individuals or groups could enhance the land's productivity and transform it into a commodity to be exchanged for profit. Improvement meant and continues to mean installing fencing to exclude in order to make nature private. Enclosed land means a single person or group owns the land; land did not have to be negotiated and shared with other groups of people, maximizing its profitability for the owner. Improvement also meant terraforming land to transform to make it profitable.

The concept of land improvement was used to justify the plantation in the United States. Black scholars place the plantation and its associated logic, rather than simply a painful memory, as the core of racial capitalism. These scholars include Katherine McKittrick, Laura Pulido, and Clyde Woods.²⁴ They build off a lineage of Black scholars who have studied the plantation, including Sylvia Wynter, and articulated theories of racial capitalism, like Cedric Robinson and W.E.B. DuBois. The plantation is the outcome of the commodification of nature and people, the reduction of man to labor and nature to land. The plantation teaches us how "racial capitalism derives value from the racial identity of another person by white individuals and white institutions" as Cedric Robinson says. By considering capitalism's racialization practices, we move beyond Marx, who primarily looked at capitalism through class divisions, and "see how capitalism is a product of

²¹ Kimmerer, Robin Wall. 2013. *Braiding Sweetgrass*. Minneapolis, Minnesota: Milkweed. Page 17.

²² Wood, Ellen Meiksins. 2002. *The Origin of Capitalism A Longer View*. London: Verso.

²³ *Ibid.*, Wood.

²⁴ Woods, Clyde. 2017. *Development Arrested: The Blues and Plantation Power in the Mississippi Delta*. London and New York : Verso.

Pulido, Laura. 2017. "Geographies of race and ethnicity II: Environmental racism, racial capitalism and state-sanctioned violence." *Progress in Human Geography* (Sage) 41 (4): 524-533.

western societies fundamental desires to exaggerate regional differences and subcultures."²⁵ This desire was made evident by Indigenous people's dispossession from their lands, the transatlantic enslavement of Black people, and forced labor on the plantation to produce capital for the white man. The plantation also shows how capitalism is part of white supremacy's quest to differentiate and devalue humans and non-humans.

McKittrick names the plantation elements to shows us that plantation logic, and by extension racial capitalism, does not happen in the abstract but is spatialized in the landscape:

*"The plantation normally contains a main house, an office, a carriage house, barns, a slave auction block, a garden area, slave quarters and kitchen, stables, a cemetery, and a building or buildings through which crops are prepared, such as a mill or a refinery; the plantation will also include a crop area and fields, woods, and a pasture. Plantation towns are linked to transport—rivers, roads, small rail networks—that enable the shipping of crops, slaves, and other commodities. This is a meaningful geographic process to keep in mind because it compels us to think about the ways the plantation became key to transforming the lands of no one into the lands of someone, with black forced labor propelling an economic structure that would underpin town and industry development in the Americas."*²⁶

Capitalism with white supremacy, enforces violent divisions in where different people live (the house and the slave quarters), attempts to control where and which plants grow (crop area, plot, and forest), and where expropriated and extracted labor is a commodity and used to produce commodities (slave auction block, the mill, and refinery). We cannot directly compare the plantation to spatialized stratification in the 21st century but can see similarities. The plantation logic has persisted where housing is segregated by race, plants are grown at scale by extracted labor, and transportation networks continue to ship commodities.

The concept of "practices of domination," presented by McKittrick, allows us to think about how the natural world, while not human, is condemned by the same logic of white supremacy.²⁷

²⁵ Quote from Kelley, Robin D. G. 2017. "Boston Review." What did Cedric Robinson mean by racial capitalism? January 12. <http://bostonreview.net/race/robin-d-g-kelley-what-did-cedric-robinson-mean-racial-capitalism>.

Robinson, Cedric J. 2000. Black Marxism The Making of the Black Radical Tradition. Chapel Hill & London: The University of North Carolina Press.

²⁶ McKittrick, Katherine. 2013. "Plantation Futures." Small Axe (Duke University Press) 17 (3): 1-15.

²⁷ I am endlessly grateful to Jasmine Martin for presenting the concept of domination to think through how the natural world is reduced without flattening the experience, lives, resistance, and other possibilities presented by human groups. Black feminist scholarship has taught me that multi-species relations means understanding the difference between species, celebrating that difference, and making kinship across species rather than flattening and considering "all equal." My sister reminds me if we do not understand the differentiation, we might end up considering the

Plantation logic considers all land a commodity to use for profit, and land that is not seen as productive is either considered a site for garbage or has to be transformed. Watery lands rot crops. Marshes smell bad. And in western culture, there is a history of associating wetlands with darkness or evil forces.²⁸ Wetlands are not a place to build a home or harvest. Their inability to fall into the binary of dry land or water condemns them to wastelands in capitalism. As wastelands, wetlands are seen as inaccessible, dirty, uncivilized, and unhealthy.²⁹ Only with transformation and domination can they become functional dry lands.

McKittrick also shows us the complexity of Black lives that emerge at the edges, rivers, forest, plantation plots and wetlands. She does the work to imagine plantation futures and alternatives. The plot is of particular importance to understanding how Black slaves and plants co-conspired to resist domination. Sometimes planters gave slaves a plot of land to grow food to feed themselves to labor the fields.³⁰ Here a relationship and practice emerged. She says, "for African peasants transplanted to the plot all the structure of values that had been created by traditional societies of Africa." For the slaves she studies, the "traditional concept the social order remained primary. Around the growing of yam, of food for survival, he created on the plot a folk culture – the basis of a social order – in three hundred years." I include the plot in the analysis of racial capitalism because it demonstrates how within racial capitalism there is a culture of resistance where humans work with the natural world to cultivate other possibilities. We can see this in the present with community gardens that feed people and also nourish bees. A recent article by geographers at Clark University say that the plot "advanced a theoretical and practical framework that guided human interaction with the nonhuman world toward fostering multispecies well-being. Their approach recognized social and ecological difference, how they were intimately intertwined and also mediated by various forms of social and ecological and social power. Moreover, it is important to recognize that 'land' was a unifying medium bringing humans and nonhumans together in socioecological assemblages of reciprocity."³¹

Grounded in this theory, we can return to the coastal flatwoods of central west Florida in the 18th and 19th centuries. At the time, the Spanish and British claimed but sparsely populated the region, in part because of a lack of resources, ongoing wars, and the perceived difficulty of conquering the swampy landscape—an unproductive wasteland. Just north, in the United States, racial capitalism in the antebellum South was in full force, and this landscape was covered in cotton, tobacco, and

experience of critters to those of humans in the process actively reducing and harming humans and failing to understand how the two groups have come to work together.

²⁸ Ibid., Di Palma.

²⁹ Palma, Vittoria Di. 2014. *Wasteland: A History*. New Haven and London : Yale University Press. Page 95.

³⁰ Ibid., Wynter. Plot practice was more widespread in Caribbean plantations than in southeastern United States because plantation owners were less likely to forgo land.

³¹ Davis, Janae, Alex A. Moulton, Levi Van Sant, and Brian Williams. 2019. "Anthropocene, Capitalocene, ... Plantationocene?: A Manifesto for Ecological Justice in an Age of Global Crises." *Geography Compass* (John Wiley & Sons Ltd).

sugar plantations. These plantations were the white man's project, to dominate the landscape through the violent exclusion of Indigenous people and forced labor of Black people for profit.

Central and southern Florida's landscape had not yet been thoroughly dominated but served a unique role in supporting the plantation economy. On the edge of the Tampa Bay estuary was a small fishing village of Spanish Cubans, but inland central and southern Florida was the land of the Seminole. The name Seminole, meaning runaway or wild one, is a term to describe the Indigenous Creek people who fled Georgia, Alabama, and the Carolinas from the British and Americans to join the remaining Calusa people in central and southern Florida.³² It also includes the Black Seminoles, Black enslaved people who fled plantations in Georgia and the Carolinas and aligned themselves with the Calusa and Creek people. The wetlands of central west Florida provided a solution for the southeast's plantation capitalists; they could clear land in the southeast by the banishing indigenous Seminoles to the lands of Florida and enclose the southeast landscape for plantation production. Westerners used Lockean logic to justify this banishment. Under white supremacy, Seminoles were labeled as savage. Their logic said that Seminoles failed to make land productive because they did not improve or enclose it- actively ignoring a large history of Indigenous land cultivation through plantings and burnings.

In the coastal flatwoods, the marooned Black Seminoles and Indigenous Seminoles were allied in their resistance against white supremacy in the southeast. The two groups, recognizing their cultural differences, worked together and in parallel to live off the land. With their knowledge of agriculture and their communal formations, the Black Seminoles complemented the Seminoles' way of life based on relationships, reciprocity, and gifts. Anchored in these epistemologies, these two groups practiced an approach to occupy the lands based on fluid kin or personal relations rather than a formal state.³³

While white southerners and capitalists tolerated the Seminoles' ongoing life, they (who marked Black people as slaves) could not accept that Black Seminoles resisted slavery by living in the marshes. Slaves, like land, were private property: treated as commodities and denigrated as uncivilized and less-than-human to justify this status and treatment. Escaped slaves loudly and publicly broke from this classification. Their resistance embarrassed and angered white southerners. Using the constructed hierarchies of white supremacy, white southerners set out to sever the two previously allied groups – the Seminoles and Black Seminoles. These efforts to divide these two allied groups across racialized differences resulted in a series of violent wars, displacement, and re-enslavement.

³² Kai, Nubia. 2015. "Black Seminoles: the maroons of Florida." *African and Black Diaspora: An International Journal* 8 (2): 146-157.

The Creek people are of the Muscogee language group including the Hitchiti, Muscogee, Oconic, Kialegee, Alabama, Natchez, Apalachicola, Mikasuki and Alachua people.

³³ Cronon, William. 2003. *Changes in the Land: Indians, Colonists, and the Ecology of New England*. New York City: Hill & Wang. Page 59.

This history provides an example of how white supremacy worked together with the forces of capitalism to create a society in which previously allied Indigenous and Black people were classified and differentiated, and where Black people and the marsh were commodified, all in a series of hierarchies that set white men at the top.³⁴ It also provides essential context for the Indigenous and Black people's enduring resistance to the plantation and explains the plantation's late arrival in central Florida. In the early mid 19th century, just before the Civil War, the land in central Florida was drained. The hammocks were turned into sugar plantations.³⁵ In 1842, after the Second Seminole War, Congress passed the Armed Occupation Act to encourage white settlement in central and west Florida.³⁶ The government offered 160 acres to live on the land if settlers promised to cultivate crops and defend the land against any remaining Seminoles. The new policy was designed to bring plantation logics and settle the land with white Americans. It moved forward the project of clearing and draining of the land and the production of the land by forced labor.

Land transformation projects serve certain groups – under racial capitalism in America, they serve white wealthy Americans. This thesis explores how plantation logics were at play in the 20th and 21st century through the concept of progress to develop the Tampa Bay Estuary. The project of building single-family homes on wetlands and intertidal zones, lands that have a history of Indigenous and plantation uses, exclusively for upper- and middle-income Americans relies on the differentiation of people and land. Part I investigates how ideas of progress, narratives and beliefs principle to a capitalism, were used to build the infrastructure of waterfront homes during the first and second Florida Land Booms. Part II looks at how plans do not always go as planned. Infrastructures interact with the environment. Actors navigate and negotiate those infrastructures, often trapped in a bind of plantation logics.³⁷ This section looks at how individuals in the Tampa Bay area understood changes in the land caused by the domination of nature. And lastly, Part III looks at how people, whose knowledge is shaped by the history and hierarchies of racial capitalism look to control the natural world through regulation and management systems, with these tools they create new frontiers. I look at the ubiquitous ponds of Hillsborough County and their management and estuary restoration efforts. In this final section, I begin to make sense of the strange environmental happenings—the frozen iguanas, the pythons, the desalination plant—that occur on the landscape today.

³⁴ Chenab Navalkha helped me articulate this connection.

³⁵ Cash crop planters preferred the hardwood hammocks because it was considered more fertile soil than the pine flatwoods. Plantations in Central West Florida were sited around the Manatee River on the southern side of the Tampa Bay Estuary.

Ibid., Otto. Page 183.

³⁶ White settlers began occupying Florida in the 1820s after the United States acquired Florida from Spain in 1821. But the Armed Occupation Act led to a wave of settlement.

Ibid., Otto. Page 182.

³⁷ The bind concept comes from Gina Lee.

Part I. Land Booms

“The almost phenomenal growth of the city of Tampa and the development of Tampa’s [Tampa’s] suburbs, and the general era of progress and prosperity that prevails through the county of Hillsborough of which Tampa is the county seat, have all tended to attract the attention of every civilized community to this section of Florida, and the Tampa Bay Land Company has aided in no small degree in bringing permanent settlers and adding to this happy condition that now exists and which promises to continue indefinitely.”

South Tampa by the Tampa Bay Land Company, 1909

In the early 1900s, the Tampa Bay floor was a seascape that offered the foundation for an underwater savannah of life. Not far from the surface (Tampa Bay's average depth was eleven feet) the estuary floor was a mosaic of seagrasses and oyster reefs. Shoal, turtle, and manatee grass made up the lawns of the Bay; today, locals call the yards the nurseries of the sea. On each blade of grass and within their roots were algae and detritus, decaying plant material. These micro materials found their home on, underneath, and in-between the ribbons of plant life. The micro life invited shrimp, crabs, and scallops to feast and take refuge in the safety of the streamers. It was not long before the predatory sea turtles, tarpon, and manatee came looking for the same things.

The seagrass gave way to vast beds of oysters.³⁸ Appropriately, August "Gus" Muench calls oysters "interesting characters" because of the engineering and processing work that they do. The nature of how oysters are born, live, and die create structures and transform seascapes. Young oyster larvae drift passively with the tidal currents, eventually working with the tide to find the right salinity for their growth.³⁹ As the oyster larvae pass through the water columns, they take calcium

³⁸ Although there is no historical record documenting precisely how many oysters were in Tampa Bay, middens or mounds of shells left from Ingenious peoples (before the Seminoles) and accounts from 19th-century settlers indicate that the Tampa Bay shorelines were alive with these characters and their structures.

³⁹ Brooks, William K. 1891. *The Oyster: a Popular Summary of a Scientific Study*. Baltimore: The John Hopkins Press.

carbonate from the waters to develop their shells. Eventually, the larvae become spat ready to settle down and fasten themselves to a surface, typically to each other, living or dead. It is here that the oysters build with their bodies reefs, beds, and bars. They create generational structures on the Bay seafloor that shape wave patterns and tidal flows and provide a home for critters.⁴⁰

While anchored, the oysters do not sit in pause. They open their shells and allow water to pass through, capturing food and filtering water. Mr. Muench observed their process of moving earth: "oysters give off sediment; they spit out silt and clay; the sediment falls down between the oysters, and then that fills up. The oysters keep going until they get to the point called mean high-water line. The mean high-water line is where the oysters stop growing, okay, and that's where your red mangrove seeds come in and get caught and start growing." The oysters way of life creates a natural transition from an underwater scape to the mangroves and edge habitat. Like the oysters who build landscapes, mangroves make islands, swamps, and forests. They provide the foundation and world for animals and other plants. At the base of mangroves live fiddle crabs in the mud, along the tangled mangrove roots are more oysters that draw raccoons from the branches to underwater, and in the limbs are large colonies of pelicans and herons who nest.

Before the 1900s, the edge surrounding Tampa Bay and the Boca Ciega Bay was a mix of mangrove forest, tidal marsh and salt flats. Rachel Carson in her 1955 book *The Edge of the Sea* captured the complex nature of mangrove forests in Florida that emerge where land meets the sea.⁴¹ In studying the coastal edge habitat, she understood the edge as a demanding place where the ocean's pulsing forces shape the landscape and a place where an entanglement of life thrives. For Carson, the mangroves that make up many edge habitats in Florida are "full of mysterious beauty of massive and contoured trunks, of tangled, roots and of dark green foliage." Like Carson, many people have held and continue to keep a fascination with the coast. American artists, poets, musicians, and novelists have explored the phenomenon. Herman Melville describes the strange pull in his opening chapter of *Moby Dick*. Ishmael observes how all roads in Manhattan lead to the coast; the city was built to guide people to the sea, and New Yorkers cannot resist the urge to flock to the sea. He says they are not content until they reach the "extremist limit of the land," at the edge or in the water. While Ishmael mocks these people, he observes how all these New Yorkers are just like him: "almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with me."⁴² Some contemporary scientists attempt to rationalize the human emotional pull to the water's edge. They offer explanations that our brains are wired to

Bruce Braun, Stephanie Wakefield. 2019. "Oysterculture." Chap. 8 in *Infrastructure, Environment and Life in the Anthropocene*, edited by Kregg Hetherington, 193-215. Durham and London : Duke University Press.

⁴⁰ Ellen A. Raabe, Laura C. Roy, Carole C. Melvor. 2012. "Tampa Bay Coastal Wetlands: Nineteenth to Twentieth Century Tidal Marsh-to-Mangrove Conversion." *Estuaries and Coasts* 35: 1145-1162. doi:10.1007/s12237-012-9503-1

⁴¹ Carson, Rachel. 1955. *The Edge of the Sea*. Boston New York: Houghton Mifflin Company

⁴² Melville, Herman. 1851. *Moby Dick*. New York : Bantam Books.

respond to waters and waterscapes' sensory images alter our biochemistry and lighten our mood.⁴³ Whatever the reason may be that people are drawn to the shore, landowners, investors and municipalities caught up in ideas of progress capitalized on the phenomena with the coastal edge and the waterfront view. In central west Florida, this process enrolled the world-making seagrass, oysters, and mangroves in their plan and transformed the species that depend on them and people's relationships and way of life.

Progress.

Politicians, planners, and business elites in the early 20th century America told the story of the promises of an onward and upward country. Following western thought, these groups of people believed the landscape could and should be used for profit. Advancements in science and technology could unlock nature's wealth. These boosters believed prosperity could be measured in miles of railroad built, tons of steel forged, and the number of machines in use.⁴⁴ The 1920s, following the Great War, was a peak moment in forward thinking. With the rise of the automobile, new roads and bridges were built throughout the county. Homeownership became a part of the story. New mobility opened the land for development and, with construction costs falling because of building standardization and streamlined model homes, there was a demand for housing construction. Homeownership was supported by the federal government, which was fearful of communism. The government believed "those who owned homes would be invested in the capitalist system."⁴⁵ The government encouraged white families to purchase homes instead of renting apartments with real-estate tax exemptions and low-interest rates.⁴⁶ In 1933, during the depression, the federal government created the Home Owners' Loan Corporation to assist homeowners whose mortgages were about to default. The corporation issued new mortgages with amortized payment plans, opening the possibility for the majority of white working- and middle-class to enter homeownership. It also created a mortgage rating system, the appraisal, based on race. Black and immigrant neighborhoods were categorized as "risky investments" and zoned for land degrading uses, like refining oil or dumping waste.

⁴³ Nichols, Wallace J. 2014 . *Blue mind : the surprising science that shows how being near, in, on, or under water can make you happier, healthier, more connected and better at what you do.* New York : Little, Brown Company.

⁴⁴ Chambers, Clarke A. 1958. "The Belief in Progress in Twentieth-Century America." *Journal of the History of Ideas* (University of Pennsylvania Press) 19 (2): 197-224. Page 199

⁴⁵ Rothstein, Richard. 2017. *The Color of Law: A Forgotten History of How our Government Segregated America* . New York and London : W.W. Norton & Company . Page 60.

⁴⁶ Jackson, Kenneth T. 1987. *Crabgrass Frontier: The Suburbanization of the United States.* Oxford: Oxford University Press. Page 175.

Following the Second World War there was an exponential growth in housing, catching up from the great depression lag. New air conditioning and pesticide technologies opened up even more land for development. The federal government offered mortgage subsidies for white Americans. The GI Bill (the Servicemen's Readjustment Act of 1944) helped the returning sixteen million soldiers and sailors purchase homes. And the government insured home builders' investments with federal mortgage guarantees, removing construction risk. The homes were typically built on the periphery of the urban core, detached, and uniform in architecture. Federally funded highways, through the 1956 federal Interstate Highway Act, made the great expansion possible. The Federal government paved highways through Black neighborhoods. Developers poured money into white neighborhoods. And so began a rapid transformation and new iteration of the domination of the American landscape through infrastructure. Churning farm and ranch land into subdivisions. And prairies into asphalt.

Progress is an essential belief in the power of infrastructure to be created, celebrated, accelerated, and scaled.⁴⁷ It is the narrative and culture used by capitalist to rationalize domination. Many scholars have debated the origins of progress narratives, but there is a broad acceptance of what progressive narratives are. I rely on Anna Tsing's analysis of progress in *The Mushroom at the End of the World – on the Possibility of Life in Capitalist Ruins* and the *Feral Atlas*.⁴⁸ Central to the progress is a celebrated forward march for a better common future.⁴⁹ The progressive narrative is teleological; it assumes that the future is part of a linear timeline and separate from the past, where the most recent state is considered better than the further-back past. It is a way of understanding time. In order to better society, humans must progress. The progress narrative depends on science and technology to lead the way. It holds promises of development and growth. Anna Tsing says progress is a general state of being with a shared understanding of the past, present, and future. She says that progress forecloses other ways of knowing, being, or understanding time in its process. Progress homogenizes time and in effect places. And ultimately, as Anna Tsing says, “[progress] feels good, [because] there is always something ahead.”⁵⁰

The frontier is the ally of progress. The development of single-family homes on the American landscape used both of these concepts. The frontier is both an idea and a material place. Like progress, it is a cultural narrative used by a society that practices racial capitalism. It supports a process of differentiating for market growth based on settler colonialism or the process of remaking Native land as settler home, for the material benefit of the settlers.⁵¹ The practice of settler

⁴⁷ Reading Kenyatta McLean got me thinking about progress.

McLean, Kenyatta. 2020. *Reclaiming Time and Space: Bringing Historical Preservation into the Future*. Cambridge: Massachusetts Institute of Technology.

⁴⁸ Tsing, Anna Lowenhaupt. 2015. *The Mushroom at the End of the World - On the Possibility of Life in Capitalist Ruins*. Princeton and Oxford: Princeton University Press.

⁴⁹ Benoist, Alain de. 2008. "A Brief History of the Idea of Progress." *The Occidental Quarterly* 8 (1): 7-16.

⁵⁰ Ibid., Tsing 2015.

⁵¹ Voyles, Traci Brynne. 2015. *Wastelanding: Legacies of Uranium Mining in Navajo Country*. Minneapolis and London: University of Minnesota Press. Page 6.

colonialism is an outgrowth of the same profit-oriented relations to the land as racial capitalism. The frontier is a trope of settler colonialism that says white settlers can strike it rich on “virgin” lands.⁵² The frontier is an actual place, too. The eastern seaboard on the Atlantic coast was the first frontier, but Americans pushed westward as the land was settled. In 1893, Fredrick Jackson Turner’s frontier thesis, prompted an interrogation of the culture of the frontier.⁵³ He vocalized how popular American culture understood the frontier at the time.⁵⁴ He said settlers saw the frontier as the edge of “civilization” and wilderness. White Americans believed they were divinely given the duty to dominate the land in order to turn it into civilization. To colonize the frontier, men had to leave the urban order behind and themselves get down in the dirt. These ideas and actions created a uniquely American landscape and identity – one that upholds “settlement, agriculture cultivation, rugged masculine individualism and racial violence.”⁵⁵ Traci Brynne Voyles, a historian and feminist scholar, sees how the frontier thesis is in conversation with progress. She says that the frontier in general is caught “somewhere in the gears of history, inclined by its pastoral nature and Native inhabitants toward the past, but providing the raw materials for the progressive industrialism of the future.” It is a bit of a conceptual somersault. In America, to realize progress means harnessing the frontier form of settler colonialism, that requires a step in the past to the wilderness and uncivilized humanity to move into the future. Voyles refers to the teleology of progress as the teleology of both settler colonialism and industrialism. In her reading, injustice is a byproduct of these processes: the land and people at the frontier are a cost on the way to progress.

Because of the frontier and hierarchies set in western societies, conceptions of nature and the urban in the American landscape hold contradictions. Maria Kaika offers a framework understanding the duality:

“Nature stands for the uncivilized: a dark and untamed wilderness that requires control and whose frontier has to be pushed outwards as ‘progress’ accelerates. On the other hand, nature is also perceived as inherently ‘good;’ as the embodiment of some innate superior moral code, that has been subverted and perverted through ‘civilization’ and urbanization and needs to be restored. The city is branded as ‘evil’ harboring, the underbelly of modern society, while at the same time, it is heralded as the pinnacle of civilization, as man’s triumph over the barbarism of uncivilized

⁵² Ibid., Voyles

⁵³ Turner, Frederick J. 1893. "The Significance of the Frontier in American History." *Annual Report of the American Historical Association* 197-227. [https://www.historians.org/about-aha-and-membership/aha-history-and-archives/historical-archives/the-significance-of-the-frontier-in-american-history-\(1893\)](https://www.historians.org/about-aha-and-membership/aha-history-and-archives/historical-archives/the-significance-of-the-frontier-in-american-history-(1893)).

⁵⁴ Scholars have expanded and critiqued his thesis. See:

White, Richard. 1994. *The Frontier in American Culture*. Berkeley, Los Angeles and London: University of California Press

⁵⁵ Ibid., Voyles. Page 31.

earlier times and as a hall mark of success of the project of pushing forwards the frontier of a wild and untamed 'nature.'”⁵⁶

In many ways, Maria Kaika shows how the frontier was used in developing homes in the 20th century. Single-family homes promised an alternative way of life to modern processes, a simpler way of life. Following William Cronon and Fredrick Jackson Turner's findings, the wild country in America was a place to return to revive, become independent, and creative.⁵⁷ The frontier allowed a man to be free. But these people created, in the wilderness at the frontier, the civilization they sought to escape. The frontier was the site of an unfolding paradox of American development, in which the dominant claims of progress, as people searched for a way out of capitalist societies' hold and, in the process, extended capitalist logics.⁵⁸

The homes lawns, highways, water systems, and electric grids that make up American suburbanization fully closed the frontier. Single family homes connected by highways offered a place where Americans could find a middle ground – between the urban center of progress and the frontier of a renewed progress. Nature was civilized by manicuring and managing it. It was enclosed by picket fences and enjoyed privately. At a large-scale nature was dominated by machines that graded and moved land. This required infrastructure works and injustices. Machines moved the earth to level the land. Crews of men were organized to flatten the landscape. Engineers' demanded that all the plants, trees, and soil be cleared to grade the land. Asphalt was poured across the landscape. With its toxic sheets dominating the landscape. It was pressed down with heavy rollers to smooth the landscape. And at a smaller scale, new homeowners sprayed bug-spray and planted crabgrasses. Erasing the heterogeneity that ecosystems depend on.

The Waterfront View

The histories of progress at the frontier are visible in the first Florida Land Boom (1922 – 1926) which changed the landscape of Tampa Bay and St. Petersburg. The area was a late arrival as a frontier, because it was seen as a swamp land that needed science, technology and capital in order to settle it. Where real-estate speculators typically sought out farmland to plat for subdivisions across the county, real-estate speculators in central west Florida also took to creating new land for new homes. They leveraged the Riparian Act that gave waterfront landowners rights to develop

⁵⁶ Kaika, Maria. 2005. *City of Flows: Modernity, Nature and the City* . New York: Routledge Taylor & Francis Group. Page 14.

⁵⁷ Cronon, William. 1995. "The Trouble with Wildernes; or, Getting Back to the Wrong Nature." In *Uncommon Ground: Rethinking the Human Place in Nature* , by William Cronon, 69-90. New York: W.W. Norton & Co.

⁵⁸ Gina Lee helped me think through the paradox.

the littoral zone. The Act said, “waterfront property [should] be developed and improved.”⁵⁹ After the Armed Occupation Act and the end of the civil war, central west Florida was, cleared of Seminoles, the land of orange groves and cattle ranches. In the early 20th century, Tampa was a small port city in the region that exported phosphate and cigars. Boosters, however, were eager to make a profit of the land. They used an imaginary of the Tampa Bay area's natural environment to draw people from the Northeast and Midwest. The popularized ideas of nature in Florida reflected what specific people thought the environment should look like and their desires for progress. These people were capitalist, landowners, and upper- and middle-class white Americans and the institutions that supported them – including municipalities and counties. A survey of pamphlets, leaflets, and booklets created by land developers and municipal governments in the 20th century demonstrates the many ways, often incommensurably, nature was used to bring Tampa and the surrounding areas into an imagined future.

Developers were explicit in their language of a Florida dream grounded in a future with a healthier lifestyle, recreation, and abundant in natural “resources.” A Florida Land and Improvement Co announcement in the late 19th century described the natural advantages of Hillsborough county for its “perfect health, pure water, sea air and the finest fishing in the *world*.” They said Hillsborough county offers “oysters in abundance and of the best variety, and hunting ground as good as can be found on the peninsular.”⁶⁰ And yet another pamphlet by the Tampa Board of Trade in 1924 claims the “Truisms of Tampa” are the climate, health, recreation, and opportunity.” They claimed Tampa as “America’s Playground” with “perfect golf courses, lakes, rivers, bays, and passes that offer an irresistible appeal to the fisherman, yachtsman.”

The developers built off Edenic imaginaries of the Florida rooted in early colonizers' dreams of the peninsula. Ponce de León, for example, a 16th century Spanish colonizer, is rumored to have been searching for a fountain of youth when he arrived in Florida. While there was no stream of water promising eternal life, Florida’s nature could extend life by nurturing good health. At the same time, Florida was crafted into a tropical vacationland for recreation. Made popular by Theodore Roosevelt, tarpon fishing found its home in the Boca Ciega Bay and Tampa Bay. Florida historian Jack E Davis argues that tarpon fishing in Florida and around the gulf was a result of the disappearing American frontier, urban expansion, and a nation at peace.⁶¹ Men sought out the physical struggle with the tarpon's heavy bodies, playing into nostalgia for the frontier.

A 1909 advertisement for South Tampa by the Tampa Bay Land Company (TBLC) summarizes how Tampa was a place to escape the “ills” of the industrial north, both the real diseases emerging

⁵⁹ Davis, Jack E. 2017. *The Gulf: the Making of an American Sea*. New York City : Liveright | W.W. Norton & Company. Page 350.

⁶⁰ (Agent), M.R. Marks. n.d. "Item 5081 - Florida Land and Improvement Co." *The Florida Ephemera Collection The Art of Tourism*. Florida : University of Florida | the P.K. Yonge Library of Florida History .

⁶¹ Davis, Jack E. 2017. *The Gulf: the Making of an American Sea*. New York City : Liveright | W.W. Norton & Company.

in urban areas and from the unwelcome effects of industrialization. Where industrial progress brought externalities, Tampans would be capable of both industry and its antithesis:

“TBLC feels that it is offering an unparalleled opportunity to the thousands of men throughout the country who are anxious to throw off the shackles of wage slavery and toil in the great factories, the mines, the workshops and the drudgery of the city offices, and engage in an occupation that will enable them to breathe the pure air of heaven every day in the year, in a climate that has not it equal under the sun for healthfulness and where the returns for a given amount of labor are many times greater than in similar employment anywhere in this country.”

These very men who sought to escape modernism fell into the linear logics of progress and sought to control, improve, and master nature, turning the frontier into the modernity they sought to escape.⁶² Where they hoped to draw people from northern cities, they also acknowledge that their “great city” was something to move away from. A brochure from the 1950s spells out the industries that make up the city of Tampa, and their undesirable side effects:

“Accent on industries, business and commerce is logical when Tampa’s story is written. There may not be as much romance in moving tons of freight, or fashioning tin cans for the growing canning industry of Florida, or making cement, or garments... or even fine cigars... but these activities create occupations for people – and make Tampa a year around city.”⁶³

The advertisement rationalizes industry and its injustices in the name of growth. Though, developers worked around this by selling housing at an arms distance. For example, the 1909 advertisement continues:

“On every bay near a great city, the shore front becomes very valuable in time, and here is a stretch of four and one-half miles that is destined to be populated with people of means, whose fine residence will adorn plots of one acre, five acres of ten acres fronting on the beach and within plain view of the city of Tampa, yet far enough away to enjoy all the comforts and luxuries of a seashore suburban home.”

Their vision can be summarized by the cover of a 1925 pamphlet advertising the city, Figure 4 below. In the foreground is a healthy white woman who looks, perhaps with an aspiration to the Bayfront lined with palm trees. Ahead of her is the Bay filled with both industrial motorized boats and romantic sailboats. Across the Bay is a rendering of the opulent Tampa Bay Hotel. Here the warm weather brings promises of eternal youth, prosperity, and happiness. Notably, the former wild waterfront of mangroves is controlled and managed with a hard edge. A series of illustrations, Figure 5, from a 1928 pamphlet for St Petersburg, just across the Bay, show fisherman chasing tarpon and vacationers visiting the balmy tropics. The drawings reference colonial exploration and

⁶² Ibid, Cronon 1995.

⁶³ The Board of Representatives, City of Tampa, and Board of County Commissioners Hillsborough County. 1940. "Tampa News and Views." *Item 2279 - The Florida Ephemera Collection The Art of Tourism*. University of South Florida | the P.K. Yonge Library of Florida History.

show it as a curious exciting adventure. In two of the images, steam-powered ships move in the background, which references Tampa's industry and transportation advancement.



Figure 4 Item 2237a Pamphlet/Booklet 1925 Tampa, Florida: South of the South. University of Florida Ephemera Collection



Figure 5 Item 2068 Pamphlet/Booklet 1928 St Petersburg University of Florida Ephemera Collection

To fully capture the frontier's myth while also realizing dreams of a better future, developers sought to create homes that were filled with the hopes of modernity and constructed an environment that mimicked the wild country. The result was the finger islands. Developers created land masses on the waterfront that also extended out into the Bay. Emerging out of the Bay was a new network of Venetian-like canals lined with water and homes. They are short lateral canals that branch off to main canals, each stopping at a dead end.⁶⁴ With a new bulkhead waterfront, people, at last, had access to a private version of the edge of the sea. Formally, a place full of turbulent flows with the force of the sea, homeowners could now conveniently and safely enjoy the captivating seafont. The dream of moving fast across the landscape after work, parking in the garage, grilling fresh fish in the private backyard, and stepping down on to your boat for an evening tour of the Bay was made possible, thanks to modernity and the dredger. Developers built this new land by scraping materials from the Bay bottom and infilling the marsh and wetlands. In this way they were able to create high value land that met the desires for the benefits of nature without its savage parts. This new land might be what William Cronon considers second nature, a nature “designed by people

⁶⁴ Davis, Jack E. 2017. *The Gulf: the Making of an American Sea*. New York City : Liveright | W.W. Norton & Company. Page 360.

and ‘improved’ toward human ends” that emerges on top of the original landscape or “first nature.”⁶⁵

The Dredge and Fill

Draining, dredging, and filling was the act of building the landscape during the Florida Land Boom. To make an improved nature with all the amenities early 20th century Americans desired, developers used the “bay eating machine” to dominate the intertidal zone.⁶⁶ The dredger is a mechanized earth moving machine that breaks up silt, sand, rocks, and plants from the bottom of water bodies and sucks up or pumps the materials through a pipeline. See Figure 8-9. Dredging is a land-moving practice that makes waterways navigable by making them deeper for ships to move through. The practice was not new to the early 20th century; people had been digging riverbeds by hand or through mud mills for centuries. However, technology was rapidly enabling the dredging practice to scale. In the mid-19th century, the first suction dredger was built in the United States called the General Moultrie.⁶⁷ It was a steam-driven pump used by the Army Corps of Engineers to deepen the Charleston harbor. Shortly after, the suction technology was used to create the Suez Canal. Soon dredging was happening all over the world.⁶⁸ The mechanized dredger opened new possibilities for moving earth and making worlds. Compared to the sea grasses, oysters, and mangroves who make worlds through their life processes the dredge makes worlds by tearing apart that life with mounted heavy steel teeth that loosens the Bay floor, and sucking up and transforming the materials into the finger islands.

The opening of the Gandy bridge, which connected the Interbay Peninsula with St Petersburg, as well as the drainage of the Interbay peninsula by Hillsborough County marked the beginning of infrastructuralization of the landscape in central west Florida. Both projects moved residential development away from the city centers of both St Petersburg and Tampa. Three major housing developments emerged in the Tampa Bay Estuary: Davis Islands, Beach Park and Sunset Park. On the St Petersburg peninsula, Perry Snell created Snell Isle. All these developments required immense engineering work, but the Davis Islands are celebrated as one of the most significant feats. Two mudflats, Little and Big Grassy Island, sat at the Hillsborough River's mouth at the heart of the City of Tampa. These isles had been created by sediment and other material that flowed out

⁶⁵ Cronon, William. 1991. *Natures Metropolis Chicago and the Great West*. New York & London : W.W. Norton & Company. Page 56.

⁶⁶ Dr. Anne Hodgson in a brief conversation about the Tampa Bay Estuary Oral Histories called the dredge a “bay eating machine.”

⁶⁷ 2021. *StartDredging.com: History of dredging*. Accessed December 2021.

⁶⁸ Miller, Mary S. 2016. *Lebby, Nathaniel H*. Institute for Southern Studies University of South Carolina. June 8. Accessed April 11, 2021. <https://www.scencyclopedia.org/sce/entries/lebby-nathaniel-h/>

of the Hillsborough River and into the estuary system. D. P. Davis and investors imagined these isles as a planned luxury community of single-family homes. Before purchased by D.P. Davis, the islands were primarily owned by the City of Tampa as a park in addition to some private lots. From 1920 – 1921 Davis purchased the land from the City and private landholders with local investors' help. Creating their vision of luxury housing and ample waterfront required a considerable amount of dredging. Davis worked with Northern Dredge and Dock Company to pump nine million cubic yards of sand from Hillsborough Bay's bottom onto Big and Little Grassy Islands. To help show the scale of this work, it is helpful to look at images of the undeveloped Bayfront, dredgers used, neighborhood plan, construction process and finally, homes (Figures 6-11). Davis Islands was a sincere second nature project: every plant, from grass to palm trees, had to be brought onto the new land. An entire nursery was established on the outskirts of Tampa to grow the necessary plants for Davis Islands. Today, when renovation work is done on the Davis Islands sites construction workers find and excavate the former mangroves branches that sit under the islands. Davis's project would not have been possible without narratives of a better future, a belief in technology, and a desire to control nature bring all its health and recreational benefits without the "uncivilized" elements.

The Florida Land Boom came to an end by 1927, largely because of a lack of confidence from northern investors, followed by the great depression. Dredge and fill projects came to a quick halt. Land and water were platted, but home building construction ended. Many of the planned subdivisions were left undeveloped. Progress was interrupted and dormant until the end of World War II. Following the second war, northerners resumed flying south for the weather, low taxes, and low living cost of living in the Hillsborough and Pinellas County area. Air conditioning and mosquito repellent (DDT) made the area even more desirable than during the First Land Boom. The dredge and fill technique continued in the Tampa Bay, notably at the Culbreath Isles, Apollo Beach, Dana Shores and Pelican Island. In the St. Petersburg area and the Boca Ciega Bay, developers appropriately named the Progress Boys developed the iconic finger islands. On the Tampa Bay side of Pinellas county, Shore Acres and Coquiza key surfaced.⁶⁹ Most of these new developments catered to wealthier Americans, with the exception of Guernsey City and the George Town apartments on the interpeninsula that were developed for mobile homes and as apartments.

Because single-family homes, waterfront views, and a second nature represented progress for white Americans, the Tampa Bay Estuary was scaled into a wet and concrete grid with runways of road, fingers of homes, patches of lawn, and interrupted seas. The linear temporality of progress elevates man, by seeing him as the protagonist in history. It thereby silences the voices of the more-than-human and ignores the coordination between species. Progress narratives assume that humans look forward while other species live day-to-day. Men move forward in time while the non-human world is static, stuck in the past.⁷¹ This thinking leads humans to believe they transcend and master

⁶⁹ Parsons, Vicki. 2015. "Bay Soundings." *Giving our bays "the finger": digging up the dirt on the history of local dredging*. September 25. Accessed 2020. <http://baysoundings.com/dredging/>.

⁷¹ Ibid, Tsing 2015. Page 20.

nature.⁷² We do not. Progress pretends or forgets that man's survival depends on coordination with other species and that we are intertwined.⁷³ It also ignores that many species often change at the same tempo as humans. This is made evident by viruses that change with us faster than we can anticipate or the pythons that outsmart our machines. *The Feral Atlas* authors argue that "co-temporalities matter."⁷⁴ Many different processes do happen at the same time, at different tempos. Building off this critique of progress, the next chapter looks at how infrastructure projects founded in commodification, differentiation, and that overlook multi-species experiences of space, do not go as planned. As a result, both humans and non-humans make compromises.

⁷² Ibid, Tsing 2015. Page 20.

⁷³ Ibid, Tsing 2015. Page 156.



Figure 6 Burgert Brothers. View of Tampa Bay through the trees. 1923 (circa). State Archives of Florida, Florida Memory.



Figure 7 Davis Isl'ands (sic) Tampa in the Bay. A Home Setting of Real Charm-A Distinct Florida Resort and Sports Center." Map insert fold out part of booklet not separate.



Figure 8 Dredger at Davis Islands, State Archives of Florida, Florida Memory.



Figure 9 Close-up view of dredge at Davis Islands in Tampa. 1920 (circa). State Archives of Florida, Florida Memory.



Figure 10 Burgert Brothers. Aerial view of Davis Island from the north. 1927-06-12. State Archives of Florida, Florida Memory.



Figure 11 House on Davis Islands in Tampa. 1920 (circa). State Archives of Florida, Florida Memory.

Part II. State Change

The homes along the Tampa Bay Estuary prompted what the Feral Atlas calls an “infrastructure-mediated state change.”⁷⁵ The authors of the Feral Atlas mean that infrastructures change land-, air-, and waterscapes. Sometimes at a large scale, like the global warming of the planet, but the Feral Atlas authors say that it can also be a more “quietly insistent, even banal, ecological violence enacted by ordinary or taken-for-granted industrial and imperial infrastructure work.”⁷⁶ They explain it by saying that infrastructures interact with natural world and in this process have unintended effects. The Feral Atlas calls these “non-design effects.” I like to think of it more simply: when dealing with the material world, things often do not go as planned because humans cannot control everything, despite our best efforts. The environment is based on complex relationships

⁷⁵ Ibid., Tsing et. al. 2021.

⁷⁶ Ibid., Tsing et. al. 2021.

and infrastructures interact and disrupt but do not overcome them. Water and winds erode and disrupt infrastructure.⁷⁷ Certain species proliferate because of infrastructures.⁷⁸

At the height of the post-war building boom from the 1950s–1970s, Tampa Bay's water quality reached an all-time low. The holes left in the bay bottom by the dredgers, the sand sitting on top of old mangrove trees, and the canals leading to nowhere enacted a series of infrastructure-mediated state changes to the estuary.⁷⁹ The pits left where the sand was “borrowed” for development from the bay bottom created voids in the habitat.⁸⁰ Without a food source, manatee populations quickly declined. The loss of mangroves also meant plants and animals did not have a place to build their worlds. The silt and muck kicked up in the dredging process clouded the clear bay, and fertilizers poured out from the new residential lawns. Algae loves nutrients from fertilizers. It explosively blossomed, overrunning the waterscape. The algae and the floating sediments blocked seagrasses from reaching the light; instead, the remaining seagrasses wilted in the shadow. The canals also concentrated pollutants at their ends, creating acute dead zones. And lastly, the tides that expand and contract were interrupted in their flow by bulk heads. The energy of the Bay bumped up and refracted against infrastructure.

The Tampa Bay Estuary collapsed. Many factors contributed to the sudden erasure of generational life: housing development on the waterfronts alone did not cause the ecological crisis. Large scale and deep dredging for the Ports of Tampa, overfishing from recreation, bottom trawling, oil spills, phosphate pollutants, and untreated waste and storm water runoff from residential developments inland contributed to the quick descent in the non-human life. The infrastructures of progress. When reading through the oral histories of people who lived along the Bay in the era of severe degradation, they point to the unintended effects of the other infrastructures in the landscape. Still, the creation of the waterfront homes had a localized impact on water quality and erased landscapes. One report says that the dredging practices led to the loss of 44% of the original marine wetlands bordering Tampa Bay.⁸¹

⁷⁷ At the time of writing, a giant ship got stuck in the Suez canal interrupting global shipping. While unclear, many experts claim this occurred because of strong wind, a clear example of how some elements are beyond human control.

⁷⁸ Iguanas thrive on the lawns and gardens of single-family home developments of South Florida. They love to eat the plants on these lawns, causing a ruckus with homeowners.

⁷⁹ The holes refer to pits left at the bottom of the Bay when land was borrowed for infrastructure projects. Tampa Bay is dotted with some 40 dredged holes. There are also deep cavern like pits caused by channels.

⁸⁰ Engineers use the term “borrowed” pits, it is a colloquial term for the holes left from dredges. In a conversation with a friend Jim Murley from Miami Dade mentioned that on occasion in Florida borrow pits on land are re-filled for development.

⁸¹ Lewis, Roy R. 1976. *Impact of Dredging the Tampa Bay Estuary, 1876-1976*. Time-Stressed Coastal Environments: Assessment and Future Action , Arlington, Virginia : The Coastal Society

Processing Change

The commodification of nature leads ecosystems to new states. Turning material earth, on which we depend for food, shelter, and clothing, to resources for investment is one of the key actions within capitalism. It sets off a series of catastrophes, documented by environmental historians and theorized by Marx through his notion of the metabolic rift.⁸² Developers in Tampa squeezed surplus from the Earth through their real-estate projects, expropriating and changing the landscape. Because of these projects, other people were cut off from the nutrition of the landscape by fences and pollution.

People respond to these shifts in the environment. Their responses are shaped by their understanding of the state change.⁸³ People understand state changes when their daily practices are disrupted. For example, how people get food and feed their family, how they take naps, or how they do their work. These are often embodied and emotional responses. Their responses and the actions they take in response are shaped by the structural positions of the people. For example, a single-family homeowner on the waterfront experiences the state change differently than someone who lives inland and perhaps labored to build the home on the waterfront. Their understanding is shaped by their positionality within the same structural conditions (racial capitalism and settler colonialism) that created the change in the environment.

I focus on the same people who *may* have been caught up in the “spell” of progress encountered the infrastructure-mediated state change.⁸⁴ These are people who were residents of the Tampa area before large-scale development. They saw the infrastructure built and lived through its effects. Later, they were involved in organizing and advocating for the Tampa Bay Estuary. I use the stories told by four individuals in the Tampa Bay Oral Histories; a photographer, a county

⁸² Marx believed that social and cultural systems are based on real material conditions and relationships. The materials that make up our lives. He also saw that capitalism depends on the extraction of surpluses from labor and nature (material things). Surplus can be understood as the difference between the value of a commodity and the value accrued by the capitalist. Like workers who perform extra work under capitalism and whose labor is expropriated, nature's capital is expropriated as surplus. Capitalist firms squeeze surplus from the landscape. Marx provides an example of agriculture, soil and labor: “all progress in capitalistic agriculture is the progress in the art, not only of robbing the laborer, but of robbing the soil; all progress in increasing the fertility of the soil for a given time, is a progress towards ruining the more lasting sources of that fertility” (Marx 1990, p. 638). An example of this is the degradation of the environment during the Dust Bowl.

⁸³ This language comes from Devin Michelle Buntén.

⁸⁴ I borrow the term spell from Natasha Myers.

Lomeña, Andrés. 2020. "Seeding Planthroposcenes: An interview with Natasha Myers." *TEA: The Ethnobotanical Assembly*. <https://www.tea-assembly.com/issues/2020/9/22/seeding-planthroposcenes>.

commissioner, a crabber, and a local farmer and fisherman. They are all white residents with varying class positions. For example, one labored in the phosphate processing. Another was the son of an infrastructure developer. They each evoke different ways of thinking about how other people think about state change, and their thinking related to how they interact with the environment and social structures.

George “Skip” Gandy (1942 – 2020) was a photographer and long-time resident of Tampa Bay.⁸⁵ Gandy was notably the great-grandson of George Gandy Sr. who pioneered the Gandy bridge that connected Tampa and St. Petersburg in the 1920s and set of the first wave of development. He grew up on Davis Islands, bearing witness and living through the development of the land. Later in his career, he used his camera to document the landscape change and draw attention to it; ironically, he also made a living by taking photographs for the same developers and industries he sought to tarnish. Developers valued his access to an airplane to take aerial images, allowing them to measure, define and put a value on the land. In his Oral History, Gandy begins by offering a description of his childhood on Davis Island:

“We lived on an absolutely stark part of a desert called Davis Island. There were no trees. It was a blinding heat. There was no air conditioning back then. I used to have dreams about melting when I would take a nap. Davis Island had two types of people as far as kids growing up: one, we called them the Hilly Fords Gang. They lived in the center. And there were dredge mounds when they dredged up Davis Island in the ’20s, in ’26, I believe. And then I was of the Minnow Man qualifications. We lived on the seawall, eventually falling in every once in a while. So we carried a rope so we could get back out.”

Mr. Gandy introduces us to how the project of land reclamation and waterfront homes created new ways to encounter the environment. The phasing in of dredge material and topography of housing created imaginations of different groups of people based on the physical landscape. Devoid of its previous life, the landscape had an embodied effect on the youth growing up on the island. Sweltering days and a lack of shade, their bodies encountered the environment in its new form. He continues describing the life along the sea walls that struggled for survival and the attitudes residents had towards the changing landscape:

“But at a young age, looking at the seawall and looking at the detritus and the bunker sea oil pumped by the ships, my father taking pictures of it and everybody getting mad, this was Davis Island as we knew it, very, very ugly scenario then.”

“Now, growing up and living on a seawall, we had crabs along the wall and shrimp along the wall. Lots of people would come out of Ybor City with a cane pole, and they would dip shrimp, and they would catch sheepshead and mangrove snapper. And then, the next day you would walk over there and it was- there were seagulls thrashing around in bunker sea oil and dying, obviously,

⁸⁵ Gandy, George S. "Skip", interview by Ann B. Hodgson. 2015. Tampa Bay Oral History Project Edited by James Clark and Jane E Duncan. Tampa, Florida: Florida Studies Center, University of South Florida, Tampa Library, (September 8). Accessed 2021.

tarpon rolling through the oil. And this didn't get much press because these were big companies that were owned by some of Tampa's elites, I suppose, and there were no regulations. People either did not care or were totally indifferent to it, the 'it'll-go-away' attitude."

Mr. Gandy situates us on the artificial edge of the land and sea. We can let our minds wander and imagine the balmy breeze of the Bay where he saw how fish, crabs, and birds negotiated the new infrastructure. The crabs were able to make a home on the concrete walls, almost as if they were looking for their old home. He also described how people from Ybor City, an immigrant neighborhood, came to the coast to gather meaty fish like sheepshead and mangrove snapper, supplementing their diet from the Bay. Through his description Mr. Gandy shows us how infrastructures shift both the environment and human relations. Where crabs make homes and people are forced to look elsewhere to feed themselves. Because infrastructures are generated for certain groups of people, we see how in a capitalist society they have a stratified effect.

Mr. Gandy represents one way of thinking about progress. In describing the immediate issue of seagulls struggling for survival, he alludes to the unchallenged faith in progress. But instead of believing the dying seagulls were an outcome of progress, he says that people believed progress would fix it in the long term. There was an attitude that the issue would be solved, water would clean itself, with little regard to the lasting impact after the visible problem subsided. People believed the future would solve the immediate issue. Mr. Gandy may not have had this view, as he was talking about other people with this perspective, but the people he is referring to are sort of bound by "progress" because they have accepted it.

Janice Platt (1936 – 2017), a retired county commissioner at the time of her interview, grew up in the Tampa and St Petersburg area.⁸⁶ Her family was from Greece and worked in boat repair. She was an angler, crabber, and shrimper over her lifetime. She was the first woman to study law at the University of Florida, along with the first Black American in her class in 1958. In her interview, Janice expounds a sense of grief: she is quietly observant of the species that no longer co-habit the landscape with her. At the same time, she recalls the still awe and magic of the landscape. What makes her interview compelling, and demonstrative of her sorrow, is how she recalls seeing certain species even when the observation is not related to the question at hand. It is as if she cannot help but tell us about the critters. For example, she recalls a childhood memory of seeing a sawfish, a nearly extinct species, when asked to describe her childhood:

"My dad was an avid angler and he would take my sister and I; my sister wasn't very big on fishing but I was and so we wade fished, we fished in boats. I remember one time when I was a child looking down and seeing sawfish on the bottom of the bay. Now there are no more sawfish in the bay. But I grew up basically on the bay, on all sides of it."

⁸⁶ Platt, Janice K., interview by Ann Hodgson. 2015. *Tampa Bay Oral History Project* Edited by Brendan Driscoll and Megan E Nowell. Tampa, Florida: Florida Studies Center, University of South Florida, Tampa Library, (March 31). Accessed 2021.

The reader or listener becomes lost in the past with Platt. In her narration, she draws us into her childhood and flatly mentions the change, consenting to the new landscape.

“We would fish along the causeway, Courtney Campbell Davis Causeway, whatever it is now, we would wade fish with my dad, I would take a crab net, and I’d have a big washtub that I would carry along and just scoop up crabs, blue crabs. And I would just get oodles of blue crabs and it was so much fun because here I was just a child and I was scooping up all these blue crabs.”

“And we would go scalloping off Fred Howard Park in Pinellas County as we would take, we could call them croaker sacks or gunny sacks, you know burlap bags, carry those behind us, and it would be about in knee deep water and just fill those sacks with scallops. Now you’re not allowed to scallop there anymore, so I don’t know if scallops have come back there or not.”

She pointed to Sweetwater Creek’s development, a creek where the residential development of Town ‘n’ Country is now. She said it “killed me” to learn that the creek would be developed; she was mainly concerned with the stormwater runoff that “killed the creek.” Her language of death references acts of violence but also the mourning process. She said it “was crystal clear and I remember seeing otter. And that’s the only time as a child I ever saw otter in the water. But otter would be on the banks and we would see the bass.” For her, and many people who lived through the changes, there was a sense of pain from the loss of non-human life.

Unlike Skip Gandy, Janice Platt does not believe people held onto a stubborn faith in progress that would lead to better futures, but rather residents were ignorant to the changes to natural life. The ignorance was enabled by a sort of removal from the environment and people who encountered the degraded environment. She says that “I don’t think people realized what was going on and that the environment was being damaged.” People just did not know what was happening.

Janice Platt may have been responding to how quick the change happened. Or she may have also been saying that people were unaware because their way of life did not put them directly in touch with the environment. For example, people whose livelihoods depended on collecting shellfish were made aware, while people who used the environment for recreation may not have noticed. Or perhaps, people could not even imagine the commodification of nature would bring such harm, and thus turned away from it. In a conversation with Andrew T. Huse, the co-principal investigator of the Tampa Bay Oral History project, Mr. Huse said that people at the time had so much confidence in companies, corporations, and industries that they could not imagine them harming their health or the environment. I challenge this, because it was clear people were aware of environmental impacts of infrastructure; Black and immigrant neighborhoods were redlined and zoned in industrial in Tampa. White people knew there was an immediate impact to these practices, but perhaps they were unaware that they themselves could be impacted.

August “Gus” Muench (1936 – 2019) was a commercial crabber in the lower part of Tampa Bay.⁸⁷ He grew up in Seminole Heights near Hillsborough River. Later, he lived around the Cockroach Bay and the Little Manatee River, an area called Ruskin, and had a business called Gus’ Crabby Adventures. Before this he had worked at a phone company. He was a large personality on the Bay. His relationship with the Bay is best described by his old friend O’Hara who said, “Gus was not religious, but he was deeply spiritual. His cathedral was the Little Manatee River and emerald islands and swash channels of Cockroach Bay. His hymns were the raucous cries of seagulls circulating his boat and the wingbeats of brown pelicans swooping in to beg for a handout.”⁸⁸ He was a person in tune with the landscape, who lived with the beat of the Tampa Bay. He was intently focused on the cycles of life of non-human species. He saw a direct connection between progress and the degraded estuary.

“Also, Davis Causeway was a great place to go crabbing. At nighttime, you’d see people out there with lanyards catching blue crabs for their, uh, crab chalou, enchilada, whatever you want to call it—and just steam blue crabs. That was a big thing back then. You don’t have those crabs today. The bay has changed. We don’t have the resources that we used to have. Off of Davis Island there were schools of mackerel. You could go out there and catch mackerel and tarpon back then. So the fishing has changed in the bay. We don’t mean to influence the bay negatively, but we do. You know, every person that comes here puts a little fertilizer on their yard, puts herbicides and different things, and they—well, actually, that storm water came down the Hillsborough River, goes into the bay.”

Mr. Muench first brings us to people who go to the Bay for dinner. He described the bounty of crabs that used to be available near the highway. The practice and ritual of making crab chalou was disrupted by the state change.⁸⁹ This was a practice of people gathering to forage from the landscape and share food with their family, friends and perhaps neighbors. Nourishing themselves directly off the landscape, outside of the private market. In his narrating, he goes on to consider why people live in a way that damages the bay at the edge.

⁸⁷ Muench, August "Gus", interview by Ann B. Hodgson. 2015. *Tampa Bay Oral History Project*. Edited by Renee Perez and Megan E Nowell. Tampa, Florida: Florida Studies Center, University of South Florida, Tampa Library, (August 28). Accessed 2021.

⁸⁸ Morgan, Philip. 2019. Gus Muench, who spent decades as a crabber, waged a campaign to protect Cockroach Bay and the Little Manatee River. *Tampa Bay Times*. Tampa, Florida, September 4. Accessed 2021. <https://www.tampabay.com/news/hillsborough/2019/09/04/gus-muench-who-spent-decades-as-a-crabber-waged-a-campaign-to-protect-cockroach-bay-and-the-little-manatee-river/>.

⁸⁹ Crab Chilau is a dish of blue crabs simmered in a spicy tomato sauce served over pasta. The dish is the outcome of the Cuban and Italian immigrants from the 19th century, as well as the crabs of the Bay.

“I learned about all this habitat along the shoreline and realized that we had cleared all these uplands to put houses on them. And I’m a mangrove freak; I love the mangroves. And realizing that that’s where all your herons feed on the mangrove crabs, and it’s the last bit of the wildlife that we have. The edge habitat protects the water body from soils washing into the bay, lakes, rivers, so it’s extremely invaluable. Well, I think we have an ego problem. We want to show off our beautiful houses, that’s what we’ve got painted up there. But I’m on the water, I want to see natural shoreline. I don’t want to see painted houses, okay. And so we don’t want to impact the bay, but we do. We do, and because you impact the small, little, tiny creatures you don’t see, you impact the big creatures.”

The crabber represents someone who draws a connection between individual human activity and the changes in the Bay’s ecosystem. He most directly references progress, when he said we “have an ego problem.” Where human progress, in the form of large homes on the Bay, come at the expense and domination of nature. It is a process that is uninterested in the downstream consequences of other life. He saw a connection between the second nature of lawns and herbicides that people value. In another part of his interview, he explicitly mentions the fencing of landscapes that removed access to lakes in the area. He understood there is a sort of pride or ideology involved in infrastructure.

Finally, James “Jimmy” Youngman, is a warden for the National Audubon Society.⁹⁰ His father worked at the phosphate plant and he comes from a family that lived off the land on the Bay front. They had a small farm and ate from the Bay to supplement their income. His narration represents someone who is forced to change his way of life because of infrastructure. He does not attempt to rationalize or make sense of the changes.

“The flats went all the way out to the edge of the reef. There was a couple of oyster bars out on the reef that, where you can still see in the ’57, ’60 aerial photographs of the area, you could still see that oyster bar that was there. When they dredged the area up, of course, the bay changed. But we lived our lives off of—my father farmed, he worked at the phosphoric plant, and he also crabbed and fished and oystered and everything. So we ate—our main diet was seafood. And I can remember my first beef I ever ate. I did not like the flavor of it. It tasted like the old soap factory on the Palm River smelled, and I did not like beef. Now, I loved oysters and crabs and fish and that’s what we ate.”

“I personally, today, would not eat anything out of Tampa Bay; however, our families did eat everything. Our food source was Tampa Bay. That’s what we survived on.”

Mr. Youngman is frank about his inability to survive off the Bay now. He misses the taste of the sea life that nourished him, he “loved” oysters. In his interview he talks about the salt-barren

⁹⁰ Youngman, James "Jimmy", interview by Ann Hodgson. 2015. *Tampa bay Oral History Project* Edited by Brendan Driscoll and Morgan E Nowell. Tampa, Florida: Florida Studies Center, University of South Florida, Tampa Library, (August 17). Accessed 2021.

landscapes that were transformed into mangroves now.⁹¹ Like Janice Platt, he marvels at the species of the Bay and their activity.

“To see what it was, it was really something. The porpoise and all used to come in over the edge of the reef and catch mullet and they would be out there. You would see these big wakes on these porpoises, I mean, in only about two feet deep. And these huge porpoise and they’re chasing that stuff. It was just, it was like whales going in there. And they would tear the mullet up. I remember the mullet jumping and you know, it was something I was very interested in and I could never figure out, but there was a little berm out there on the edge of the reef, it was shallow out there.”

“Well, the porpoise would be herding the balls of mullet up, way off. You could watch them for hours out there herding these balls of mullet. Well, all of a sudden, here would come this line of mullet just racing across this little berm. The porpoise would jump over it and then be waiting there with their mouth open and the mullet would be there right in their mouth. How in the world these porpoise knew to do that is beyond me. I do not know. But I’ve seen some amazing things right there at Whiskey stump.”

Environmental impacts are often measured in loss of property, physical health impacts, or quantifying degradation. These stories allow us to open to the emotional and embodied response to projects, especially the loss of daily encounters with the landscape. These four individuals are resigned to their losses. They treasure their memories of the landscape and wrestle with the reality of change. Joy Parr, a historian, studies how people have embodied reactions to large-scale infrastructure projects, says that people have both an active adaptation to changing environments as well as experience “the whispering of ghost.”⁹² For her, the whispering of ghosts are relics of the past that persist and are reminders of loss as well as sources of resilience and resources for rebuilding. The four locals recounted the radical changes caused by the waterfront development project and how it disrupted their daily lives. The changing environment demanded they adapt their daily practices; they had to look elsewhere for food or, as we will see shortly, look for ways to repair or mitigate future loss. We can learn how the project of progress shaped their lives, how they accommodated the change, and how their sense of yearning for the past landscape burst within them. As they see it, a part of their experience of being human and interacting with the natural world was taken away. But, their tacit knowledges of the landscape would inform and shape plans, management, programs, and other landscape happenings.

Managing Change

⁹¹ Restoration ecology has focused on mangrove restoration, unable to restore the salt flats that used to pervade the landscape.

⁹² Parr, Joy. 2010. *Sensing Changes Technologies, Environments, and the Everyday, 1953-2003*. Vancouver : UBC Press. Page 2.

A dead Bay posed unanticipated problems for planners and homeowners. The collapse of the estuary meant that ideas of progress had to accommodate the natural world. The pamphlets and advertisements failed to mention oil-drenched tarpon. Aside from the smell of rotting fish and algae, the collapse of the Bay conflicted with the promise of a landscape of adventure, youth, and luxury. Waterfront property values and tourism were threatened. To achieve progress, capitalists believed nature needs man's stewardship - a concept borrowed from George Perkins Marsh, a late 19th century leader of the American conservation movement.⁹³ Marsh believed that nature could not heal itself and man had a responsibility to protect, care for, and improve nature. He believed in mastery over nature, through science, to steward nature. Marsh's conservation is an approach rooted in dominance. Jake Kosek, a geographer, identified a quote from Marsh that summarizes the logic, "whenever he [man] fails to make himself her [nature's] master, he can but be her slave."⁹⁴ He believed statistics, ordering and mapping was essential to the improvement of nature. The environmental managers, planners, and advocates for the Tampa Bay Estuary would follow George Perkin Marsh's approach to environmental management to move forward.

In 1970 the United States Court of Appeals, Fifth Circuit, ruled that a developer, Alfred G. Zabel, needed a permit by the Army Corps of Engineers to fill eleven acres of tidelands in the Boca Ciega Bay for a trailer home park. Like Tampa Bay, the Boca Ciega Bay has been subject to land reclamation and finger islands in the 20th century. The U.S. Fish and Wildlife Service and residents in St. Petersburg opposed the project because of the Boca Ciega Bay's declining sea life. Developers across the country were awaiting the decision. In the historic ruling, the Fifth Circuit said that the Army Corps of Engineers could deny project permitting based on ecological reasons. Before this decision, permitting was denied predominately because of navigation obstructions. This decision set off a wave of environmental legislation that would end dredge and fill practices in the Bay for residential development (deep dredging for port expansion continues). It also signaled the commencement of a complex regulatory environment for planners and developers.

The wave of environmental regulation and management starting in the 1960s was driven by the people in the Tampa Bay Oral Histories – people who began to have embodied reactions to the state change. They aligned themselves with the nation-wide environmental movement. Though, they needed to make bedfellows with other groups of people to form a coalition to advocate for regulation. They aligned themselves with homeowners and people who recreationally used the Bay. "You think about recreational fishermen; who are they? They're people who can afford a boat and good tackle. They're businesspeople, and so they could see that their fishing, their hobby, was being jeopardized."⁹⁵ Janice Platt shows how she made a bedfellow of these groups to push

⁹³ Kosek, Jake. 2006. *Understories: The Political Life of Forests in Northern New Mexico* . Durham and London : Duke University Press.

⁹⁴ *Ibid.*, Kosek.

Marsh, George Perkins. 1965 (original 1864). *Man and Nature: Physical geography as modified by human action* . Cambridge, Massachusetts : Harvard University Press, Belknap Press.

⁹⁵ *Ibid.*, Janice Platt.

her agenda to improve Bay.⁹⁶ They aligned themselves with residents who protested Mr. Zabel's development. These protestors were not only interested in the sea life and edge conditions. Mr. Zabel had proposed building housing in Boca Ciega Bay as a trailer park, which would afford lower income residents a waterfront view. Their activism, in the name of the environment, was tangled with practices of othering and saying, "not in my backyard." Together this coalition of scientist, planners, property-owners, and recreation-seekers negotiated with the interest of developers, export industries, and agencies responsible for flood control.⁹⁷

There was a series of key wins for these groups that led to the improvement of the Bay. They had five approaches:

- 1) **Point-Source Pollution⁹⁹:** To make housing less expensive to construct, developers had been using septic tanks or directly dumping waste into the Bay or upstream water bodies. Janice Platt was a leader in mandating that development projects connect to sewerage treatment plants rather than dumping directly into the Bay. Sewerage plants also served as places to collect waste, not treat waste. In 1972, the Florida Legislature passed the Wilson-Grizzle Bill that mandated advanced wastewater treatment for sewage plants discharging in the Bay and in 1979 the Howard F Curren Advanced Wastewater Treatment plant opened adjacent to Davis Islands. Another Act in 1983 called the Water Quality Assurance Act would address other point source pollutants like hazardous waste and increase regulation from septic tanks.
- 2) **Protect Remaining Wetlands:** The Zabel v. Russel case made it difficult for developers to practice dredging and filling wetlands, but not impossible. In 1976 the state enacted the Aquatic Preserve Act to preserve salt marshes, sea grasses and mangrove forest. In 1984, the Florida legislature passed the Wetlands Protection act, that sought to address unregulated development and increase the criteria for granting or denying developer permits for lands that connected to any wetlands.
- 3) **Non-point source pollution:** Nonpoint source pollution comes mainly from fertilizers, insecticides and oil, that move with water as it passes through the built environment. Some environmentalist called it the "silent evil." In the 1980s, a series of land use controls policies was put in place to regulate

⁹⁶ Today Ducks Unlimited, a conservative non-profit that supports hunting, is responsible for major wetland restoration projects in the greater Tampa Bay area.

⁹⁷ The Army Corps of Engineers and the newly created Florida Water Management District built flood control infrastructures following a flood in 1961. This includes a 14-mile-long by-pass canal that runs through the eastern side of Tampa. Environmentalist were concerned about the rushing and storage of water with hard edges. Mining, fishing, agriculture, and large-scale transportation (channel deepening) in the Bay were other issues the coalition organized around. These industries continue to wrestle with environmentalist.

⁹⁹ Point source pollution is pollution that is directly discharged into a water body, like a pipe, ditch, ship or factory smoke

developers to capture and treat storm water runoff. The 1985 Florida Growth Management Act supported this action.

- 4) **Habitat Restoration:** Habitat restoration can be either passive or active. Passive restoration typically means addressing the pollution, moving barriers to water flow, and allowing the landscape to self-recover. Active restoration means doing the above plus building habitat and actively managing species. In 1987 the Surface Water Improvement and Management Program was created designed to improve water quality and natural systems. Many of the Tampa Bay Oral histories refer to this program as essential in improving water quality through restoration in the Estuary watersheds. The 2000 federal Estuary Restoration Act has also pushed habitat restoration forward. Tampa Bay Watch and the Tampa Bay Estuary Program put in oyster domes and reef balls around the Bay.
- 5) **Measure and Monitor:** In the 1970s the South Florida Water Management District began aerial mapping and floodplain delineation. This was just one step in beginning to measure the environment. Today the Tampa Bay Estuary Program creates and maintains oyster habitat sustainability indexes, sea grass assessments, and benthic indexes. Citizen science and monitoring is also used.

Today, the Tampa Bay estuary is on life support.¹⁰⁰ A complicated arrangement of new infrastructures, laws, science, monitoring has brought seagrass conditions back to its 1950 conditions. Restoring seagrass conditions to the 1950 was a goal set out by the consortium of partners. The water quality has improved, and it is generally clear. The Bay's survival hinges on new pipes that move waste, ponds that hold rainwater, and mangroves that protect homes from new storm surges. Natures doctors are materialized as a lasagna of agencies with a slew of acronyms: SWIM, EPA, SWFWMD, TBEP, ABM, and CCA.¹⁰¹ In the 21st century, this collage of new infrastructures is holding the Tampa Bay estuary at its 1950's conditions. The process of saving the estuary has set off a spiral of infrastructure-mediated state changes that themselves need management.

Under capitalism, nature is flexible. It serves a role to support economic growth for certain groups of people. It can be moved and managed to reach those goals. The landscape management practices put in place that restored the estuary show how the desire to maintain growth and progress in the Tampa area, based on low-wages, low-taxes, low-cost housing, and a healthy natural environment, continues to rely on the domination of the natural world and the racialization of people. Reading both the landscape and government reports show this. A 2014 report by the Tampa Bay Regional planning council said Tampa Bay Estuary is an "economic engine" and said

¹⁰⁰ Ibid., Di Palma. The idea of a landscape on "life support" comes Di Palma.

¹⁰¹ Surface Water Improvement and Management (SWIM), Estuary Protection Act (EPA), South Florida Water Management District (SWFWMD), Tampa Bay Estuary Program (TBEP), Agency on Bay Management (ABM), Coastal Conservation Association (CCA)

it contributes \$20 billion to the region's economy.¹⁰² Tampa has maintained itself as America's vacationland, where people continue to come for its warm weather, boating, fishing and kayaking. In 2019 there were over 30 million tourists in the Tampa Bay area. Its waterfront remains property of wealthy residents. In 2019, multiple homes sold for over 6 million dollars on Davis Islands.¹⁰³ The same study that valued the economic worth of the Bay, highlighted the tax revenue from Bayfront property, "homes directly on the bay waterfront generate roughly four times the property tax revenue of those not on the waterfront."¹⁰⁴ Bay management is entangled in the existing structures.

In the next section, I will look at two management tactics and landscape infrastructures essential to keeping the Bay alive. First, I will look at the artificial ponds that intended to reduce non-point source pollution and flooding. I will also look at habitat restoration projects or projects that aim to create habitat and restore essential "services." I look at how these projects sustain concepts of progress and how humans and non-humans are governed through these projects, spurring some strange happenings. I will also look at how some individuals' actions, while contributing to the management regime, are attempts to make sense of life in the 21st century not an active part of a larger management agenda.

¹⁰² 2014. *VISIONS*. Pinellas Park: Tampa Bay Regional Planning Council.
https://www.tbrpc.org/wp-content/uploads/Vision_AR_2014_print.pdf.

¹⁰³ DiNatale, Sara. 2019. "Is Tampa the new Miami for tourists?" *Tampa Bay Times* . July 25. Accessed 2021. <https://www.tampabay.com/business/is-tampa-the-new-miami-for-tourists-20190725/>.

Danielson, Richard. 2020. "Here are the 25 most expensive Tampa Bay homes sold in 2019: Proximity to the gulf and bay drove prices for the most in-demand homes into the eight-figure range during 2019." *Tampa Bay Times*. January 9. Accessed 2021.
<https://www.tampabay.com/news/business/2020/01/09/here-are-the-25-most-expensive-tampa-bay-homes-sold-in-2019/>.

¹⁰⁴ 2014. *Bay Post Script*. Tampa , September-October. Accessed 2021.
https://myemail.constantcontact.com/Tampa-Bay-Estuary-Program-E-News--Bay-An-Economic-Powerhouse--Farewell-to-an-Icon--Grant-Deadline-Nears--Flamingos-On-The-Road-.html?soid=1101662914468&aid=PkEfsuN9_Sw.

Part III. New Frontiers

In the 21st century two new infrastructures are essential to keeping the Tampa Bay Estuary alive: ponds, both retention and detention, and the restoration of land. Ponds are an engineered solution in the landscape that supports ongoing extractive development of landscapes. The ponds express a continued desire to control water and nature for growth. Their varied management approaches reflect in the landscape the social ordering of people and nature. On the other hand, popular approaches to restoration ecology are embedded in western practices of science and stewardship, limiting their potential. These projects are driven by people who are in a double bind under racial capitalism: these people recognize that progress harms what they love, and act out of care for the environment, but their actions are bound and limited by the hegemonic way of understanding science, life, and property under capitalism. Under these constraints, I ask how people's emotions are engaged in these practices, but also how their actions are an outcome of their understanding of progress. There are some people who seek to play progress' game and profit. Yet there are others for whom the game stops making sense. Some actively resist, advocating for alternative futures. And others can transcend the bounds through their way of living.

Ponds

In the Tampa Bay watershed, unincorporated areas have been growing at a faster rate than the City of Tampa. Janice Platt for example said in 2015, "it's all the land out in unincorporated Hillsborough that has just skyrocketed." While in recent years, there has been increasing demand for housing in the City of Tampa and St Petersburg by younger people, demand for single-family homes outside of the cities remains high. As undeveloped land supplies are diminished in the cities, developers have created new frontiers by turning over farm and ranch land into subdivisions in

unincorporated Pinellas, Hillsborough, Polk and Manatee Counties.¹⁰⁵ Planners and historians say that the City of Orland and Tampa are colliding together as developers create housing inland. Ponds are a defining feature of these subdivisions. Despite being miles away from Tampa Bay, nearly all of these homeowners have had waterfront views since the 1980s, as detention ponds abut all of the homes. Developers often think of ponds as a constraint to the profit margins of their projects, but in reality, the ponds actually create the land that they build on. Ponds, in effect, are the wet part of the wetlands when the wetlands are transformed into land. Without the ponds, the subdivisions would be a swampy puddled mess during rainstorms. In this way, ponds facilitate the improvement of land—in fact, they help create land.

The ponds function as a control measure to slow water down during rain events, hold water, and treat it before reaching the Bay. They are designed to capture the rain that passes through lawns, roads, roofs, and all of the surfaces in the watershed. They arose in Tampa in the 1980s when land use planning required developers to manage runoff from the built environment.¹⁰⁶ There are two types of ponds in the landscape, stormwater detention and retention ponds. Both types settle and suspend sediment and other solids that would otherwise enter streams that feed into the Bay. Retention ponds, also known as wet ponds, are the pools of water whose level fluctuates in response to rain events. The banks of the ponds slope at the edge of housing developments. Sometimes the slope is gradual and sometimes it is steep, depending on how much land a developer is willing to forgo for the required pond. Developers use the soil they excavate from the pond to grade the buildable land, so they usually want to carve a deep pit. Pond design elements may include walking paths and at other times chain link fences. Detention ponds, or dry ponds, are more ephemeral, they hold water for a short period of time, slowing down water flow during rain events. These landscapes often look like a dried depression of grass, sometimes muddy. Both of these ponds are designed to reduce phosphorus, nitrogen and other metals from entering the Tampa Bay.¹⁰⁷

When environmental regulation ended dredge and fill practices on the Bayfront, the ponds replaced them as a new way of infrastructuralizing the landscape. Developers say the ponds offer visual diversity, wildlife, and fishing, in keeping with the language of earlier generations of boosters on the waterfront. Their creation requires the same terraforming or earth moving practices, where developers excavate and move soil. Because the ponds are both embedded in the environment and of the environment, they themselves induce infrastructure mediated-state change. They appear banal in the landscape, but there is a lot of activity in and around them. Their water levels grow and shrink with rainfall. They get stinky when water levels are low. Their water flows erode banks, eating up the lawns of property owners. They collect trash that creeps onto homeowners' shores. They also invite critters. Some are welcome, like the osprey that bring in young tarpon. Others, like the alligator, concern residents. Plants are always growing around the ponds and herons and

¹⁰⁵ I remind myself that subdivisions unfold on land with a long history. Typically, lands that were used for farming right before, not an imagined pristine forested hammock.

¹⁰⁶ The idea for ponds as a solution to stormwater emerged in the 1960s, but did not take effect until the 1980s in central west Florida.

¹⁰⁷ 2018. *Adopt-Apond Notebook*. Hillsborough County Florida.

<https://hillsborough.wateratlas.usf.edu/adopt-a-pond/AAP-Notebook-201811.pdf>.

egret's forage there. When the ponds are stagnant aquatic insects grow and hatch out of the ponds, of concern are the mosquitoes or the stone flies. These environmental happenings occur at the specific pond site, but at scale they have created a new state in the environment.

In Tampa, energy is put into ponds. Ponds, as an infrastructure, require maintenance and their ownership models or governance shapes these practices and therefore the landscape. A large private industry exists for landscaping and controlling mosquitos. The industry often relies on dredging practices to clear ponds.¹⁰⁸ They install elaborate drainage connections and fountains to aerate the water to make it difficult for mosquito eggs to grow. Sometimes they rely on pesticides and chemicals. Other ponds are left unchecked. They look like unmanicured landscapes, with green murky water and overgrown plants. They often have a lot of animal life. Some ponds are maintained by home owners' associations and others by the municipalities. Yet, other ponds behave as a common without clear ownership or governance. In this case, individual homeowners act in their own self-interest rather than together resulting in a zero-sum game. In this scenario, all actors enjoy the ponds' benefits—its ability to capture water and make land profitable—but none want to invest in its management or to live with its unmanaged state.

Hillsborough County has responded to this tragedy of the pond commons through a program to incentivize homeowners to act in common interest through maintenance. In 2000 Hillsborough County and the Southwest Florida Water Management District rolled out a program called "Adopt-a-Pond."¹⁰⁹ It is a program to help residents organize to "improve water quality, wildlife habitat and the appearance of storm water retention ponds."¹¹⁰ The program asks for 50% of homes around the pond to come together to improve the pond for three-years, and in exchange the County provides them with native plants. In its design, the program attempts to flip the ponds from just being seen as an appliance for use, to a landscape that is more intimate. However, the program is constrained by a way of think that dominates nature and associated stewardship concepts presented by Marsh. Program participants receive an Adopt-a-Pond notebook that details how a proper pond should be maintained. The notebook is a pond management manual that says the "goal is to manage your pond environment, so that nuisance plants do not dominate, a healthy balance of plant diversity is achieved, and water quality is improved." The program requires that residents' clear invasive plants but also some critters in its definition of what a proper landscape should look like. For example, the program suggests residents scrape "exotic" apple snail eggs off plants using their hands to kill the eggs.¹¹¹ The notebook also encourages "vigorously" shaking Moscovy duck eggs, so they die. These attempts to manage invasive species, does not pay attention

¹⁰⁸ Conversation with Dr. Ann Hodgson

¹⁰⁹ In an informal conversation with Whit Remar, Sustainability & Resilience Officer, City of Tampa he said this program is not widely known or used.

¹¹⁰ N.d. *Hillsborough County Website*. Accessed February 2021.

<https://www.hillsboroughcounty.org/en/residents/property-owners-and-renters/water-and-sewer/actions/apply-to-adopt-a-pond>.

¹¹¹ County, Hillsborough. 2018. *Erosion Control in Hillsborough County*. Hillsborough County , March 26. <https://hillsborough.wateratlas.usf.edu/library/videos>.

or address the infrastructures and beliefs that made these species thrive.¹¹² At the same time, the program advises homeowners with how to deal emotionally with the pond maintenance:

“Lastly, remember we’re dealing with natural cycles here. One year is only one of those cycles. So be patient and don’t be surprised if it takes a year or more to get your pond in shape. Even then, it’s always changing, so just have fun with it and don’t stress. After all, it’s just a pond!”

To cap off the efforts, the program offers an annual best-maintained pond competition, judging the residents and environments efforts every year. These practices of pond-judging and egg-shaking, encouraged by governments, demonstrate the embodied and emotional element of ponds and their maintenance. Ponds are an infrastructure that are intimately tied to people’s way of life in Tampa.

These ponds are meaningful late 20th and 21st-century landscape infrastructures that play a role in upholding progress. Ponds, even as they are a solution for progress, also disrupt and resist progress. Continual attempts to manage mosquitos, ducks, and snails, and these species’ resistance to human containment strategies, consistently trouble the progressive narratives desire of what the natural world should look like. The physical appearance of the pond’s nature and maintenance of a certain image of that nature, reflects differentiated power dynamics in the landscape. Normative ideas of how ponds must be managed also manifest across lines of social stratification among the humans of Tampa. Homeowner residents, who pay fees to homeowner association may have a “properly” maintained pond. And neighborhoods where residents rent, perhaps in part due to differential access to homeownership across racial lines, may have an unmanaged pond.

Ponds show their ability to give way to the environment when the infrastructure breaks. On April 4th, 2021, a retention pond in Manatee County, just south of Hillsborough County, threatened complete collapse, unfortunately demonstrating the “precarity” of landscape management.¹¹³ A 480-million-gallon wastewater reservoir serving the Piney Point phosphate plant had been leaking for days when the wall failed. Residents were evacuated out of their homes in anticipation of a sheet of toxic flooding. In addition, the discharge entered the Tampa Bay, possibly reversing years of restoration efforts. This one event shows how the life support set up by managers can be quickly become unplugged.¹¹⁴ The Piney Point pond is a larger scale than the residential retention and detention ponds I have been discussing, but the catastrophe provides a tragic example of how the pond technology creates opportunities for disruption of progress.

¹¹² Lomeña, Andrés. 2020. “Seeding Planthroposcenes: An interview with Natasha Myers.” *TEA: The Ethnobotanical Assembly*, <https://www.tea-assembly.com/issues/2020/9/22/seeding-plantthroposcenes>.

Stoetzer, Bettina. 2018. “Ruderal Ecologies: Rethinking Nature, Migration, and the Urban Landscape in Berlin.” *Cultural Anthropology* 33 (2).

¹¹³ Ibid., Anna Tsing 2015.

¹¹⁴ The Tampa Bay Estuary is actively monitoring the impacts of the Piney. Point impact: <https://shiny.tbep.org/piney-point>.

Living Walls

The Tampa Bay Estuary in the 21st century is buzzing in restoration activities, with a focus on turning the hard-edge walls at the waterfront to red, black and white mangroves. In 1990 the Bay was named into the National Estuary Program establishing an industry of scientists to monitor seagrass growth, water visibility, and mangroves. The Tampa Port Authority offers grants to groups through its Sovereign Lands Management Initiatives program to fund ecological restoration within the Tampa Bay Estuary and its watershed.¹¹⁶ Residents on the regular come together to plant mangroves and pick up trash. People load up in boats and wade into the Bay. William Fehring, the former environmental director from the Tampa Port Authority, said in his Tampa Bay Estuary Oral Histories interview, “they’re running out of places to do it [restore], we’ve restored so much of the Bay.”¹¹⁷ The dominant way of doing restoration ecology in Tampa Bay is bounded by the structures of racial capitalism: restoration efforts establish values of what the environment should look and are tangled in desires to maintain, if not increase, property values.

Restoration in the Tampa Bay has centered a reference point in time for where to restore to, deciding what the environment should look like. Natasha Myers, a scholar who has been studying how restoration ecology is situated in colonialism, says reference points can support “a moral economy of goods and bads, desired natives and reviled invasives, normative reproductive imperatives, militarized chemistries, and ideas about ‘proper’ ecological relations.”¹¹⁸ Restoration that’s aiming for a temporal reference goal fully misses that the only goal of natural systems is the proliferation of life.¹¹⁹ Restoration ecology in the Tampa Bay Estuary has followed this narrative, setting a hierarchy of life. For example, practitioners have set restoration goals to the year 1950s before the height of post-war growth. Jacob F. “Jake” Stowers III, an employee of Pinellas County, described the process of setting a restoration goal for Tampa Bay in the oral histories.

“When we first started what, we were all sitting around, you know, what’s going to be a target? Well, scallop was one of them. And we’re all going, “Yeah, right, but that’ll never happen. We’ll have to be able to drink the bay water before that does, probably.”

¹¹⁶ Sovereign lands are defined by the State of Florida as tidal lands, islands, sandbars, shallow banks and lands waterward of the ordinary or mean high water line, beneath navigable fresh water or beneath tidally influenced waters.

¹¹⁷ Fehring, William, interview by Ann Hodgson. 2015. *Tampa Bay Oral History Project* Edited by Jane E Duncan and Megan E Nowell. Tampa, Florida: Florida Studies Center, University of South Florida, Tampa Library, (June 19).

¹¹⁸ Myers, Natasha. 2017. “Unsettling Ecological Restoration in an Urban Oak Savannah.” *Draft* Prepared for the “Patch Anthropocene” Wenner-Gren Symposium. Page 23.

¹¹⁹ *Ibid.*, Kimmerer. Page 334.

“So, then we started talking about, and at first it was, “Well, let’s take it back to what it was.” Well, was when? When do you quote was? I mean, the Indians? Wait a second, we’ve destroyed an awful lot of the bay. That would be tough. And who’s got the aerial [photos] of when it was the Indians? I mean, you know, bottom line. So, how can you do? So, we literally discussed and discussed and came up with 1950, because when you took the aerials, and I think this is how it came about, I think we took the aerials and, ’50, there was starting to be some dredge and fill but it wasn’t so drastic as it became later.”

This sort of approach plays into deciding what is worthy of life and what is not. Scallops, for example, are sacrificed. The animal bodies are rendered as wasteland bodies.¹²⁰ Their conversation also gestures towards Indigenous peoples but quickly leaps over them, deciding aerial photos would be a prerequisite for establishing a reference model. Their imaginations of what were possible were bound by information stored in the technology. Their decision on the 1950s also begs the question, what values did they hope to resurface? The 1950s evokes a moment in time where many white Americans enjoyed abundance, enacted through violent segregation of people and extraction of the natural world. A time where white supremacy operated without consideration of the catastrophic consequences of the Anthropocene to come.¹²¹ It speaks to an unproductive nostalgia where tenants of domination are praised.¹²² Mr. Stowers goes on to say, “Guess there still aren’t very many scallops. But that would’ve been a standard that would’ve been super hard to meet, I think.” In this way, scallops were “collateral damage of progress.”¹²³

Land is also often seen as a “machine” in ecological restoration, and plants are valued for their function.¹²⁴ In Tampa Bay mangroves are measured for their potential to protect property values and their roots are put to work to capture carbon. Restoration documents in Tampa highlight the edge habitats ability to filter pollutants from urban and residential areas, control soil erosion, and support tourism. A 2008 article in Bay Soundings asked are, “Mangroves Tampa Bays Cash Crops?”¹²⁵ A direct reference to the plantation. Where the trees are valued at \$3,190 per acre. In a twist of fate, mangrove restoration has been too successful in the Tampa Bay Estuary. Scientists say that the “system is sort of out of whack” in Tampa – where mangroves are out producing salt marshes and salt barrens.¹²⁶ They says this is due to warmer temperatures.

¹²⁰ Ibid., Voyles. Page 114.

¹²¹ In the future, I would like to spend more time studying nostalgia in environmental restoration projects and the 1950s as a critical moment in environmental history.

¹²² When former President Trump and his supporters say, “Make America Great Again,” they are referencing the 1950s.

¹²³ Ibid., Kimmerer. Page 326.

¹²⁴ Ibid., Kimmerer Page 331.

¹²⁵ Cimitile, Matthew. 2008. "Mangroves: Tampa Bay's Cash Crop?" *Bay Soundings* . Fall. Accessed 2021. <http://baysoundings.com/legacy-archives/fall08/Stories/feature.php>.

¹²⁶ Ladika, Susan. 2010. *Habitat Plan Focuses on Restoring the Balance*. Tampa : Bay Soundings. <https://www.tampabay.wateratlas.usf.edu/upload/documents/Habitat-Plan-Focuses-on-Restoring-the-Balance.pdf>

Within this context, there are individuals who turn to doing restoration work through their practices of living or for whom progress “stops making sense.”¹²⁷ These people are not planners, designers, scholars, or even individuals committed to forming more just futures, but are common people who turn to working with the natural world for their physical and mental health. They use their imagination, respond to local conditions, and specific needs.¹²⁸ These are people who turn to working with the with the natural world, as a way for them to operate within the ruins of racial capitalism. In their actions with the natural world, they are sort of able to transcend structures, while still operating within them. These people might be former prisoners of war who look to working with the natural world to cope with their post-traumatic stress disorder.¹²⁹ Or they can be regular people who make music to palm trees.¹³⁰ Or they might be a crabber who uses the natural world to make sense of the day-to-day. They are not people who hold answers, but just are.

August “Gus” Muench’s had grounded himself in what he loves as a way of shuffling through conditions of progress. For him, progress attempted to erase what he loved, the Bay. The crabs and the oysters that lived in the mangroves underneath the waterfront homes. He said for him his way of living off the land is a way for him to stay healthy, “you know, I’ve been a blue crabber on the river there for 39 years, and I still do it. It gives me exercise every day to get out on the river

¹²⁷ This language comes from Anna Tsing, but we can put her in conversation with W.E.B. Du Bois who demonstrates that for many people, progress never made sense. For example, W.E.B. DuBois in his essay “Of the Meaning of Progress,” develops the notion of “ugly progress” to challenge the linear trajectory of progress narratives. Drawing on the Black experience of slavery and racial violence, ugly progress can be understood as a “looping conception of time that involves shuffling between disappointments of the past and hopes for the future, with each formed in confirmation with the other.”

Ibid., Anna Tsing 2015.

Davidson, Joe P. L. 2020. "Ugly progress: W. E. B. Du Bois's sociology of the future." *The Sociological Review* 69 (2): 382-395.

¹²⁸ Wakefield, Stephanie. 2020. *Anthropocene Back Loop: Experimentation in Unsafe Operating Space*. London: Open Humanities Press.

¹²⁹ Cummings, BJ. 2020. *The River That Made Seattle: A Human and Natural History of the Duwamish*. Seattle : University of Washington Press. Page 117 – 119.

Kate Brown shared the story John Beal captured by BJ Cummings. John Beal’s doctors told him to “get a hobby” to manage his heart attacks, induced by PTSD. His hobby began as a practice of picking up trash along a tributary of the Duwamish River behind his house. He dragged washing machines, abandoned cars and construction out of the river. He began to plant duckweed and watercress. The act of physically working with the natural world kept his heart in check and ended up creating habitat for many fish. He eventually would partner with the Duwamish Tribe. He is an example of someone for which, progress did not make sense and turned to restoration as a reciprocal act of healing.

¹³⁰ Ibid, Wakefield. Wakefield explores people’s practices (CrossFit, architecture practices and making music) in the ruins of liberalism. Important to her scholarship is removing judgment values from these practices, she says “they just are.”

and catch the blue crabs.” He said that [the river] “changed my life” and that his “hope is that I can continue crabbing until I fall out of the boat and drown.”¹³⁴ He makes meaning out of life through his practice of crabbing. Crabbing for him relies on the restoration of the mangrove habitat.

Like restoration ecologists, he had been putting in oyster reefs along waterfront homes to create edge habitat. But unlike restoration ecologist, he was not a trained scientist, his efforts came about from his daily practice of crabbing and observation in the landscape. Through his practice he watched these processes, and his observations come from his experience as a crabber.

“Um, that’s a natural process, so looking at the seawall reefs that I created—that came about by accident. I was throwing old crab traps off the dock, and I watched the little fish go through it—swim through this old crab trap just like you walk through a door, and so, I said, “That’s habitat!” So I said, “Well, maybe I can make something,” so I came up with, uh, creating seawall reefs from using polyethylene fencing, which is just a skeleton, like a skeleton of a sponge, and, therefore, the oysters, or barnacles, whatever grows on that, creates a living rock, you might say. It’s all porous. So all of these creatures get down, and then the crabs, then the fish get down in that. It’s not like a solid rock, where you only have an outside surface. It’s actually a porous surface. It’s a porous surface, which serves for fish, and as it completely fills up, then the red mangroves use that porous surface; the roots can go down in that sediment of silt and clay, and that’s a good rooting structure for the red mangroves to grow. So that was how, I could say, that the reefs started as habitat for fish. It went from fish to oyster habitat, and then, as oysters break off from that, it creates an oyster bar.”

In his life, Gus received grants from and started a non-profit called Oyster Reef Design. He put in reefs near Madeira Beach, Cockroach Bay, and underneath the Williams Park pier. Reading his oral history, his love of crabs, and his home drove him to experiment with oysters, mangroves, and fish and create the habitat.

Gus’s dream was to create a Conservation Overlay of Cockroach Bay called Uzita. Uzita was name of a chief of the Indigenous people in Cockroach Bay where he lived that was lost to the Spaniards. In his interview, Gus said they had lived in Cockroach Bay for 700 years. “We all know Cockroach Bay is a place to go commercial, recreational fishing, and there’s more to the history of that, and we need to understand that.” In this way he was asking for people to look back in time and understand tempos outside of progress. He also created a swim-walk trail named after Uzita. The trail was designed to for people to wade through water, as a way to encourage the deep memory in the landscape. “But, doing that [swimming], you’re walking in the footsteps of the people who lived there for 700 years! They didn’t have the shoes that you got. But you get a different aspect of what it feels like to be an Indian and see the wildlife, you know, the fish and the bird life.” Here he

¹³⁴ 2021. "Crabbing With Captain Gus Muench." Discover Florida Channel . <https://www.discoverfloridachannel.com/crabbing-with-captain-gus-muench.html>.

subtly encourages his neighbors and the residents of Tampa to encounter nature in different ways, to see “how important it is to us.”

Conclusion

I can start to make sense of some of the strange happenings in central west Florida. The green iguanas' arrival and expansion in south Florida are connected to an infrastructure of commodity exchange. The iguanas came to Florida as stowaways on boats bringing fruit from Latin America, an exchange practice rooted in plantation past that links two distant places. The gardened, second nature, landscapes of residential homes in Florida are a buffet for the lizards. They thrive in the gardens until the temperature reaches forty-four degrees Fahrenheit, where their corporal reactions trouble how many Floridians want the natural world to behave. The two women from St. Petersburg who hunt the Burmese python are part of a large-scale management practice to address the environmental effects of an animal trade and a hurricane that broke progress temporarily. They both find meaning in their daily maintenance and adventures. Their understandings of what it means to care for the environment are shaped by the structures of domination and history of the frontier and settler colonialism. They enter the "uncivilized" wetlands of the everglades, invoking a masculine control of the python. Their efforts, and those of the State of Florida, are ceaseless because of the agency of the python. And the technocrats and planners of Tampa face water shortages and surpluses because of a market-based society that sees land as a site of profit. Where the life of the soil and the flows of water are regimented for commercial growth. Engineers look for other solutions, based on popular values. They created a desalination plant, which for many people is a sign of progress, the triumph of the human.¹³⁵

These are tired infrastructure truths. As Katherine McKittrick says, our work is to "notice the logic and breach it."¹³⁶ We can rupture it by understanding that infrastructures cemented in ideas of progress are not the only types of infrastructure. We can image other infrastructures where humans co-conspire with the plants, soils, animals, and winds to create alternative futures.¹³⁷ Where we see plants or nature as our ally, not as subordinate. Learning from the ways plants grow worlds and studying their desires and intentions. It means changing our understanding of time, attuning ourselves to the life we share space with, and seeing how that life coordinates between different temporalities. We can begin to ask ourselves how the seagrasses, oysters, and mangroves of Tampa Bay built their infrastructures. What can we learn from the oysters who build the foundation of

¹³⁵ Demuth, Bathsheba. 2019 . *Floating Coast: An Environmental History of the Bering Strait* . New York: W. W. Norton & Company. Page 66.

¹³⁶ McKittrick, Katherine. 2021. *Dear Science and Other Stories* . Durham and London : Duke University Press. Page 2.

¹³⁷ Ibid., Myers 2020. Many of these ideas come from Natasha Myers work on Seeding the Planthropocene as well as Kate Browns work on radioactive berries.

Brown, Kate. 2019. *Manual for Survival: A Chernobyl Guide to the Future*. New York | London: W. W. Norton & Company.

their homes by spitting out waste? What about the mangroves who through their life create a nursery for the oceans? Can we also feed the oceans through our life processes?

Black and Indigenous scholars and activists see this and put forth visions of new relationships to land. We can learn from them and see the landscape bursting in potential for new relationships now, not in some distant abstract future. The ponds, for example, can be sites where ownership is unsettled – returning the land to the earth itself and its people – people who form relationships out of respect, reciprocity, and honor of land. Reversing western conceptions of profit, enclosure, and domination. Gardens can and do spring everywhere, quietly liberating people and soil with food.¹³⁸ Reknitting our bodies and spirits with the places we live. We can see nature as not a place where humans are excluded, but a place where we form relationships with the plants, critters, soils, and water. Seeing the difference between species and learning across the differences. Practicing these other ways of life does not mean forgetting the past but going back to the plantation and learning from the practices on the Plot. Or going back to the so called “wastelands” of central west Florida, where Seminoles and Black Seminoles allied with the landscape. In the present, it depends on us allying ourselves with the resurgence of Indigenous people and letting go of control or an imagined power.¹³⁹

This sort of practice depends on deconstructing and unlearning what the natural world should be. Forgetting improvements and profits. Where we “are the students of nature, not the master.”¹⁴⁰ This means deconstructing and unlearning what we know and how we know. This process is not easy. And it is not quick.¹⁴¹ But we can remember we are not alone!¹⁴² Nature works with us. We can collaborate and learn from our friends, family, and other people. And there are people who have presented methods for alternative ways of knowing. Black methods, shared by Katherine McKittrick, show a way of inquiry based on unwavering curiosity and wonder (the desire to know).¹⁴³ She looks at how “black people are interdisciplinary actors, continually entangling and disentangling varying narratives and tempos and hues, that together, invent and reinvent

138 Kate Brown studies gardens are sites of liberation. Ashanté M Reese sees quiet sites of liberation. See also Monica White.

Reese, Ashanté M. 2019. *Black Food Geographies: Race, Self-Reliance, and Food Access in Washington, D.C.* Chapel Hill: The University of North Carolina Press.

White, Monica. 2018. *Freedom Farmers Agricultural Resistance and the Black Freedom Movement.* Chapel Hill: The University of North Carolina Press .

¹³⁹ Ibid., Myers 2020. Jasmine Martin teaches me that liberation means getting comfortable without control.

¹⁴⁰ Ibid., Kimmerer. Page 333.

¹⁴¹ I attempt a personal practice of unknowing. I am learning how to listen, I study plants through drawings, I discuss with friends, I read and re-read (study) anti-colonial literature, I revisit Jamaica Bay and pick up trash, I say “hi” to the seahorses along the Hudson River, I get lost in music, and I make mistakes. I am slow, silly, and serious.

¹⁴² Ibid., Myers 2020. Myers reminds us that this task is impossible alone. It depends on the plants who give us breath.

¹⁴³ Ibid., McKittrick 2021. Page 5.

knowledge.”¹⁴⁴ I, following McKittrick, am asking for new ways of forming knowledge, doing science in new ways, and holding space for multiple ways of knowing. Where we use music, art, and stories to know. Where we value multiple skills and collaboration. Collaboration means across differences in people and the natural world. Without this, there is a certain future of an endured mess created by infrastructures of progress. Where iguanas fall out of trees onto lawns, where toxic waste spills into the oceans, and where people push the seas back with a broom. We can do life otherwise.¹⁴⁵

144 Ibid., McKittrick 2021. Page 5.

145 Ibid., Myers 2020.

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