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Banking on the Impossible: The Political Life of Wetlands in Southern Louisiana

Michael Kantor

Abstract

Wetland banking is an increasingly prominent environmental governance strategy in the United States. Associated with larger trends toward the financialization of ecosystem services, wetland banking acts as a mode of social regulation while stabilizing a particular regime of accumulation. Its use by the Army Corps of Engineers and the Environmental Protection Agency to regulate the development of wetlands has certain implications for the distribution of and access to land, water, and capital. This thesis investigates a particular wetland development project in southeastern Louisiana and its relation to a local wetland bank, the Army Corps of Engineers, and a multinational oil company. This thesis concludes that wetland banking as an environmental governance strategy reproduces a system of uneven development and environmental injustice.

Banking on the Impossible: The Political Life of Wetlands in Southern Louisiana

by

Michael Kantor

B.A., Vassar College, 2008
M.A., Syracuse University, 2013

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Table of Contents

List of Acronyms

ACE – Army Corps of Engineers
CoE – Corps of Engineers
CWA – Clean Water Act
EPA – Environmental Protection Agency
ESA – Environmental Site Assessment
FAC – facultative plants
FACW – facultative wetland plants
GIS – Geographic Information System
GPS – Global Positioning System
LDEQ – Louisiana Department of Environmental Quality
LIDAR – Light Detection and Ranging
MBRT – Mitigation Bank Review Team
MQVN CDC – Mary Queen of Vietnam Community Development Corporation
NIMBY – not in my backyard
OBL – obligate wetland plants
SWANCC – Solid Waste Agency of Northern Cook County
TNW – traditional navigable water
USFWS – United States Fish and Wildlife Service
USGS – United States Geologic Survey
VEGGI – Village de l'Est Green Growers Initiative

Introduction

Louisiana in September was like an obscene phone call from nature. The air – moist, sultry, secretive, and far from fresh – felt as if it were being exhaled into one's face. Sometimes it even sounded like heavy breathing. Honeysuckle, swamp flowers, magnolia, and the mystery smell of the river scented the atmosphere, amplifying the intrusion of organic sleaze. It was aphrodisiac and repressive, soft and violent at the same time.
-Tom Robbins, Jitterbug Perfume, 1984

Because of these multiple, overlapping layers of constructed spaces and the delta's amorphous, amphibious nature, it serves as an ideal environment for a history of modernization oriented to physical examples of slippage, erasure, and rupture. The delta's unsolid surfaces, where it is often difficult to reach solid ground, repeatedly challenge human efforts to build permanent spaces.
-David Biggs, Quagmire, 2010

New Orleans is a city that Peirce Lewis aptly characterized as 'impossible but inevitable' – an impossible geography made and remade and unmade and remade through labor, engineering, management, and mismanagement, which ripples with indomitable inventiveness undergirded by extraordinary hubris. Sedimentations are not just the effects of direct environmental engagement, of course, but the outcomes of material social practices at all scales.
-Cindi Katz, 2008

Shifting Landscapes

In *Home Ground: Language for an American Landscape*, Mike Tidwell offers this historical definition of a delta:

> A flat, low-lying area located at the mouth of a river and created over many years by sediments and nutrients deposited when the regular flow of river water mixes with the relatively still water of a lake, gulf, bay, or ocean. The term delta was first used by Herodotus in the fifth century B.C. to describe the mouth of the Nile River, whose shape resembled the triangular Greek letter of the same name, with the apex pointing upriver (Lopez 2006: 100).

Two important points are immediately apparent from this description. First, the geographical concept of a delta has a long history in human language and thought, and contrary to the title of this edited collection of geographical terms, there is little that is distinctly

American in either the word or the idea. In fact, deltas and their attendant river valleys share a special place in the collective imaginary of human civilization. And secondly, a delta, as idea and as material landscape, is a site of mixing, growth, and turbulence. Deltas are inevitably active landscapes – this is not to suggest that any landscape can actually be inactive, but rather that the idea of a delta carries an especially unstable morphology. When we think of delta landscapes from high school social studies we think of the rise of great agrarian civilizations, fertile soils, vast and powerful dendritic river systems. Deltas are sites of production. Great waves of sediment suspended within the energy of a river are finally deposited on the border between land and water, and from this act of continual deposition new land is produced. The landscape grows, and from this growth of rich alluvial soil agriculture develops, and with it civilization. Of course, this geographic hagiography is ultimately disingenuous to both the physical processes of deltaic environments and the contested spaces of the built landscape.

In *Quagmire*, David Biggs describes the Mekong Delta of Vietnam:

> Because of these multiple, overlapping layers of constructed spaces and the delta's amorphous, amphibious nature, it serves as an ideal environment for a history of modernization oriented to physical examples of slippage, erasure, and rupture. The delta's unsolid surfaces, where it is often difficult to reach solid ground, repeatedly challenge human efforts to build permanent spaces. Every September and October, monsoon rains bring sweeping floods that cover much of the flatlands and threaten to erase the dense array of fields and levees and the fragile network of roads and bridges. Almost every inch of the delta's surfaces are cultivated by human hands (including water surfaces), but the Mekong, a Lao word meaning "mother of rivers," can in a matter of days erase every trace of such work (2010: 6).

From this description of the Mekong we get a clearer sense of the delta landscape as shifting and unstable, a matrix of human and biophysical changes and interruptions. Things on the land sit uncomfortably upon 'unsolid' foundations. And Bigg's point is that the concepts, narratives, and technologies (e.g., nation-state, colony, map grid, even private property) that sit

atop the things on the land are equally unstable, given to 'slippage, erasure, and rupture.' Furthermore, the delta landscape encompasses the human and the biophysical as agents of change, as forces constantly producing that landscape, or as Cindi Katz describes New Orleans, "an impossible geography made and remade and unmade and remade through labor, engineering, management, and mismanagement…" (2008: 17). According to the hydraulic principles of erosion, sedimentation, and deposition, deltas have a tendency to expand, to redistribute land from source to mouth. But they are also literal borderlands – active moments of friction between land and water. Oceanic deltas are troubled by hurricanes, tides, and rising sea levels. And the river itself, the energy highway that builds the land, is subject to flooding and branching and shifting course. The very currents of friction and energy that carry new sediment downriver also carve out new banks and branches, altering the topography of the riverbed and sometimes forcing the river to shift course entirely, in the process washing away the built environment sitting atop the floodplain.

But this is not to suggest that the formation of the delta landscape is all action and reaction, that biophysical forces simply determine the contours of human habitation. Rather, the landscape as a whole is produced by a variety of forces, some human and some biophysical, and these forces inform one another to the extent that they become inseparable. Human action alters the currents of biophysical action just as much as a hurricane shifts the built environment. And these actions are both contingent and purposeful. As Don Mitchell writes:

> Such impositions on the land, such embeddedness, is a product of will, especially social will, and of struggle, especially social struggle, as differing people, organizations, and institutions seek to make the landscape functional, to make it meet whatever their specific needs, desires, or mandates are. The result is rarely the work of a single actor unilaterally imposing her will, no matter how hard she might try. There is not a single "author" of the landscape (2012: 46).

Mitchell argues for an investigation into the morphology of the landscape. Such an investigation, or *critical* "morphological eye," seeks to understand the material landscape, the things on the land, as elements of struggle and power and purpose. In other words, the landscape is no accident, though it is never wholly planned or intentional either. To this perspective I would like to add that it is not only the 'things on the land' but the land and water itself that is a site for patterns of production and reproduction, for the circulation of capital and meaning, for lived experience and subjectivity, and for the operation of the technologies of government and subject-making. In other words, landscape morphology should consider the commodification of nature, the material production of nature (and built environments), and the production of meanings through which we know ourselves and know our relationships to nature, to land, and to the state.

According to David Harvey, "Created ecosystems tend to both instantiate and reflect, therefore, the social systems that gave rise to them, though they do not do so in noncontradictory (i.e., *stable*) ways" (1996: 185). And alternatively, "contradictions in the social relations entail social contradictions on the land and *within* ecosystemic projects themselves." This thesis is about the specific contradictions embedded in the material and discursive practice of wetland banking, a relatively new and specific form of federal wetland mitigation. A wetland bank is simply a space that has been constructed, or in some cases preserved, to maintain particular ecosystem functions broadly associated with wetlands. This bank is empowered by the government to sell a certain number of *credits* to would-be developers who are seeking to fill or alter another wetland in a separate location. The mitigation strategy is not all that different from a cap and trade carbon market, and its purpose is to maintain a national stock of wetlands with zero net loss. Wetland banks operate in a sphere of market-oriented environmental governance,

employing an ideology of ecological modernization to institutionalize a cost associated with the development of critical ecosystems. As we will see, this strategy of governance is not without significant contradiction, and how we choose to define and measure concepts like wetland, credit, ecosystem function, and no net loss matter greatly to the ecological and social impacts of wetland banking.

Of course, wetland banks operate within particular ecological and social environments – various actors and relationships influence the shaping of and application of regulation. Local influences reshape national processes, and vice versa. I have chosen to locate my research in southeastern Louisiana, and in particular, a neighborhood in New Orleans East called Village de L'Est. As I will describe in more detail in Chapter 1, Village de L'Est exists at the eastern terminus of New Orleans, where commercial strips, refineries, and residential blocks give way to coastal wetland, and ultimately the Gulf of Mexico. Village de L'Est is a relatively poor and predominantly African-American and Vietnamese neighborhood. Several waves of Vietnamese immigration occurred following the Vietnam War in 1975. Vietnamese residents are overwhelmingly Catholic and most belong to the Mary Queen of Vietnam Church. The Church acts as a community center and source of pastoral power. The Mary Queen of Vietnam Community Development Corporation (MQVN CDC) was founded after Hurricane Katrina to offer case management to Vietnamese residents and direct neighborhood reconstruction projects.

In this thesis I follow the CDC's post-Katrina efforts to construct a community-oriented farm and market in Village de L'Est. Their first project, Viet Village Urban Farm, is the focus of this thesis, primarily because it was never completed. The CDC became mired in the wetland mitigation regulations of the Clean Water Act and were ultimately unable to pay for the wetland credits necessary to begin construction on Viet Village. The Viet Village Project placed the

CDC in a direct relationship with the Army Corps of Engineers, the federal regulatory agency responsible for administering the wetland mitigation program. The Corps assesses potential wetland sites and determines whether construction projects require mitigation under Section 404 of the Clean Water Act. If mitigation is required, the Corps determines the extent of the mitigation required. In the early 1990s, wetland banking became the preferred mitigation strategy recommended by the Corps. In the case of Viet Village, the Corps suggested that the CDC purchase a certain number of wetland credits from the Paradis Mitigation Bank, a commercial wetland bank in an adjacent watershed. Paradis Mitigation Bank is owned and operated by Chevron, one of the oil majors with significant land holdings and operations in southern Louisiana.

Unable to afford the cost of Chevron's wetland credits, the CDC abandoned the Viet Village project after several years of correspondence with the Corps, members of Congress, the Environmental Protection Agency (EPA), and local environmental engineers. After the BP Oil Spill, the CDC again developed plans for a communal agricultural project in Village de L'Est. The Village de L'Est Green Growers Initiative, or the VEGGI Farmer's Cooperative, is an association of small-scale urban growers that pool their produce to sell wholesale to markets and restaurants. In early 2013 the VEGGI Co-op completed a one acre communal farm in an area not considered a wetland. In the final two chapters of this thesis I compare both projects in order to draw conclusions about the relative environmental justice of wetland banking regulation. By using the two agricultural projects as bookends, I claim that wetland banking restricts localized livelihood strategies, violates environmental justice principals by discriminating according to class, and inadvertently promotes accumulation strategies based on absentee landownership. In short, low-income individuals and communities of color are least capable of paying to mitigate

the impacts their livelihood strategies have on surrounding wetland environments, particularly in coastal Louisiana.

Throughout this thesis I argue that wetland banking operates as both a regime of accumulation and a mode of social regulation. As an environmental regulatory strategy it offers certain temporary fixes for contradictions in the capitalist mode of production, while it simultaneously produces its own inherent contradictions. I argue that wetland banking produces economic value through both the labor of exclusion and the labor of measurement. I describe the uneven development of wetlands as a regime of accumulation because wetland banking actually enables the continued development of wetland environments, all while revaluing the fixed capital of previous invests in extractive industries. Finally, I argue that wetland banking acts as a mode of social regulation by appealing to the flexibility and presumptive equality of the market, while balancing the needs of individual landowners with the so-called public good.

However, the great irony and contradiction of wetland banking is that the Army Corps of Engineers, the regulatory agency responsible for administering wetland mitigation projects, is itself undermining the biophysical processes that reproduce the deltaic environment in southern Louisiana. In other words, by channeling the Mississippi River and its distributaries, and by building levees and flood control structures, the Corps is systematically perpetuating what O'Connor (1998) calls the "underproduction of the conditions of production." Wetland banking regulation restricts the localized livelihood strategies of members of the Village de L'est community, while continuing to enable the destruction of coastal Louisiana wetlands at a much larger scale via the flexibility of market exchange. The Army Corps and the oil and gas majors pay for the right to develop particular wetlands, leaving those without such financial resources to muddle through within a rigid regulatory framework.

This is not to suggest that wetland banks are *necessarily* bad or unjust. But they cannot be divorced – they would not exist if they were – from the social relations and actors that value them, and in southern Louisiana, environmental regulation that serves the business of capital accumulation is good regulation. Indeed, the extent to which the two are mutually constitutive is somewhat mindboggling. In the chapters that follow, I argue that wetland banking fails the broadest tests of environmental justice (see Holifield 2001; Perreault et al. 2012; Pulido 2000), relying instead on the fetish of the market to provide a procedural and distributional logic to the literal production of landscape. In summary, then, if we work from this notion of wetlands as relational entities, "as continuous transformations and internalizations of different 'moments' (events, things, entities) within the overall process of political-economic reproduction" (Harvey 1996: 74), the question of what a wetland is comes to stand for a more fundamental question: what social relations must exist in order for wetlands (and wetland banks) to exist? And how do wetland banks function as a 'mode of social regulation' that in turn stabilizes or makes possible a specific 'regime of accumulation' (Bridge and Jonas 2002)?

The current paradigm of wetland mitigation works for some people and it doesn't work for others. It makes some more secure, or wealthier, or pleased at the idea of preservation, while it makes others less secure, poorer, and excluded from certain spaces. In addition, it has myriad consequences for the non-human species that share the landscape. An enormous and multi-scalar assemblage of government agencies and institutions, individuals, industrial interests, citizen groups, and biophysical forces have negotiated competing claims, shifting lands, and unintended consequences for hundreds of years. My goal is to trace the circuits of power and the implicit meanings that operate to conceal and obfuscate the decisions and commitments that actively redistribute flows of water, sediment, and capital. In other words, why does the present techno-

managerial paradigm of wetland mitigation work for certain people and not others? What types of knowledge produce wetlands and wetland mitigation as an object of analysis – as a problem and a solution? What does wetland mitigation even mean anyway, and for that matter, what is a wetland?

In what follows I will seek to engage with these themes through the prism of coastal wetland loss in Louisiana and the practices, knowledges, and technologies deployed to mitigate (or exacerbate) this loss. This is a story about landscape change. It is also a story about territory, governance, and the subjects who coproduce and inhabit the land and the governing apparatus that articulates with the land and people. Finally, it is a story about power, both social and biophysical. In *The Organic Machine,* Richard White describes the Columbia River through a geography of power. White draws on Lewis Mumford, who saw power as, "that protean word that can mean energy, the ability to labor and effect change, as well as the capacity to command both energy and labor" (1995: 110). White sees power as a complex of social and biophysical processes – the hydraulic forces of the river itself, the potential energy of the river expressed socially through hydroelectricity, salmon runs, etc., and the social organization that both gives rise to and arises through particular modes of organizing labor. In short, power is the ability to exploit labor (human and biophysical) for a particular end. To map these energy flows "would be to see how humans socially and culturally organized this labor and to glimpse how people were connected and ranked. The spatial arrangements created maps of energy, maps of labor, and maps of meaning" (1995: 22).

For our purposes, I am concerned with power as it relates to a geographically disaggregated collection of spaces in a landscape. Here, power is simultaneously more complex and less visible because there is not one site of engagement, no contiguous flow of energy or

matter. Power must first define its site of operation as something known and measurable, and this process of definition is itself a site of struggle and competing authorship. Furthermore, this process of definition does not happen prior to action – action and meaning formation occur simultaneously and are mutually constitutive. In order to articulate a geography of power of coastal wetlands in Louisiana we must first understand what we mean by coastal wetlands, and more importantly, we must understand why we can talk about a collection of often dynamically divergent spaces as if they are more or less equivalent.

The Historical Geography of the Delta

The coastal wetlands of Louisiana are formed through the hydraulic actions of the Mississippi River Delta. According to the US Geological Survey, "The 300 kilometer-wide Mississippi River delta plain and its associated wetlands and barrier shorelines are the product of the continuous accumulation of sediments deposited by the river and its distributaries during the past 7,000 years" (USGS 1995). Every thousand years or so the Mississippi River shifts course. As sediment builds up at the mouth of the river outlet the main channel gradually seeks a shorter and steeper course to the Gulf, thus abandoning the prior channel. This process forms what geologists call lobes. The Mississippi River Delta has four ancestral and two active delta lobes, "which accumulated as overlapping, stacked sequences of unconsolidated sands and muds" (USGS 1995). The current primary lobe is called the Birdfoot or Balize Delta (after the French settlement of La Balize at the mouth of the river) and has been active for 600-800 years.

This hydraulic and geologic process gradually built the network of coastal wetlands that make up southern Louisiana today. In recent years, however, Louisiana has begun to lose its coastal wetland at the astonishing rate of 75 square kilometers annually from a total area of 3

million acres or 12,000 km^2. According to the USGS, Louisiana's wetlands today represent around 40% of the wetlands of the continental US, but a stunning 80% of the losses (1995). In *Discovering the Unknown Landscape*, Ann Vileisis describes the dramatic decline of wetlands in the United States from European colonization to the present. In that time the US has lost over half of its wetland habitat. The word *wetland*, however, only became part of our vocabulary in the 1950s (Vileisis 1997). The USGS anticipates that at the current rate of wetland loss, Louisiana will have lost all of its coastal wetland in another 200 years. S. Jeffress Williams of the USGS describes the predicament:

> The swamps and marshes of coastal Louisiana are among the Nation's most fragile and valuable wetlands, vital not only to recreational and agricultural interests but also the State's more than $1 billion per year seafood industry. The staggering annual losses of wetlands in Louisiana are caused by human activity as well as natural processes. U.S. Geological Survey scientists are conducting important studies that are helping planners to understand the life cycle of wetlands by detailing the geologic processes that shape them and the coast, and by providing geologic input to models for mitigation strategies (1995).

The brief goes on to describe a series of mitigation strategies that we will explore in more detail below. In a somewhat frank admission, Williams allows how wetland mitigation is difficult, costly, and politically sensitive. The engineering solutions that have been proposed "are not only expensive but have produced mixed results at best" (USGS 1995). In the following pages we will look at the history of this radically destabilized landscape, the proposed mitigation mechanisms, and the institutions and people who struggle over and within this deltaic geography. I will seek to analyze the apparent failure of wetland mitigation and to understand the dimensions of power that have produced southern Louisiana and its wetlands as a space of uneven erasure, where loss sits side by side with unrivaled accumulation.

The geographer Pierce Lewis famously characterized New Orleans as an 'impossible but inevitable' city, made so by the geography of the Mississippi River delta. New Orleans sits aside

the Mississippi River at the point of shortest distance between the river and Lake Pontchartrain. The enormous lake was formed by the deposition of two former lobes of the Mississippi River, before the main channel shifted most recently to the south. Since at least 500 B.C. the area that is present day New Orleans was occupied by indigenous peoples. The site afforded relatively easy portaging from the river to the lake, linking spaces of transportation and fishing. French settlements in the early 1700s also made use of indigenous portaging trails. Tristram Kidder argues that continuous indigenous habitation of the New Orleans area encouraged subsequent French colonization. Not only did these social relations 'make the city inevitable,' but human habitation had long altered both the topography and ecological communities of the marsh environment of the deltaic plain. Human artifacts, whether they are indigenous midden and shell heaps or present day oil canals and levees, do much to alter the predominantly flat landscape of the delta swamps. Elevation, in turn, influences the biotic communities that develop in certain areas. Several midden mounds, for example, supported dense stands of Oak that attracted French settlers when they established the outpost of New Orleans. Kidder argues that the 'inevitable' site of New Orleans was thus produced through the interaction of deltaic processes, biotic communities, indigenous settlement patterns, and early French need for resources, trading partners, and knowledge of the surrounding country (Colten 2000). As we will see, elevation – both natural and produced – becomes a crucial feature of the landscape, for settlement and subsistence, as well as rent seeking capital accumulation strategies. There is little that is inevitable about a landscape where midden heaps, oil pipelines, natural and artificial levees, dredged shipping lanes, and Cypress stands intermingle to produce an uneven topography where wealth is often measured in elevation, and power is literally the ability to build land in one location and remove it from another. Of course, power is also the ability to exclude people and

activities from certain spaces. To imagine New Orleans an 'impossible but inevitable' city is to silence the role of power in producing a shifting and slipping topography, a built space where water, sediment, waste, oil, fish, timber, and capital are constantly circulating, and where people are constantly struggling for the literal high ground.

Theory and Process

To speak of power is to speak of people and institutions and artifacts of governance. Just as the landscape is a mosaic of authorship, power is a constellation of practices, discourses, technologies, and modes of organization. In his book on the techno-politics of Egypt, Timothy Mitchell (2002: 210) writes of the 'discursive manufacture' of objects of analysis and the produced space between objects and ideas:

> The world is divided into nature and science, the material and the technological, a realm of objects and a realm of ideas. Yet the apparent naturalness of the imagery is misleading. The assumptions and figures on which it is based can be examined and reinterpreted to reveal a very different picture. The limits of this alternative picture are not those of geography and nature but of powerlessness and social inequality. What appears as nature is already shaped by forms of power, technology, expertise, and privilege. The alternative solutions that follow are not just technological and managerial, but social and political.

Our task, then, is to interrogate the technologies, expertise, and forms of social organization that produce the uneven deltaic environment of southern Louisiana. Viewing the wetlands of the Mississippi River Delta as artifacts allows us to consider their histories as hybrid objects – constellations of water and soil and biotic communities, as well as objects of social production and reproduction, as meaning and material, object and idea.

In what follows I engage with different moments of a socio-ecological relation. Each slice is dialectically related to each other slice, and together they constitute and operate an enviro-technical system, albeit one that is incredibly unstable and given to both intended and

unintended erasure. For my theoretical framework I draw heavily from Marxist political economy, and especially from theories of uneven development and the production of space. I attempt to pair these theoretical approaches with traditions from political ecology and regulation theory, including environmental governance, critiques of ecological economics, and institutional forms of social regulation. At times I employ Foucault's notions of subjectivity, governmentality, and discourse, though never as comprehensively as I do more traditionally Marxist interpretations of social relations. While there are, as always, multiple axes of difference and subjectivity associated with social relations, lived experience, and the contours of power, I tend to focus primarily on class. However, especially in the discussion of the Vietnamese-American community of refugees in New Orleans East, there are quite stark experiences of race and nationality that play a prominent role in the production of certain spaces of exclusion and isolation. While these are discussed, they are never my primary focus, and are, as such, a shortcoming of this thesis. A more direct investigation of the environmental *racism* associated with wetland banking is called for, but is beyond the scope of this thesis.

Throughout the thesis, I use documentary material as my primary empirical evidence. Maps, personal correspondence, official letters, policy documents and agency guidance, operational manuals, newspaper reports, commissioned reports, and historical records all provide a discursive framework for the practice of wetland banking specifically, and environmental governance more broadly. Because I am dealing with the operations of federal agencies, all actions and correspondence are well documented. Additionally, the Mary Queen of Vietnam Community Development Corporation (CDC) was generous enough to share all of their project files with me. This has enabled me to trace the history of the Viet Village Farm Project through the documentary evidence, which has turned out to be a ready-made archive of a particular sort.

To the extent that these records are only a partial accounting, then my conclusions are based on a partial record. It is, however, meaningful to simply observe what documents are in the organization's records and what may be missing. This archive consists of two binders with the results of a two-part environmental site assessment conducted by a third party firm, and eight manila folders with collections of correspondence, project notes, and research prepared by the CDC. The folders are labeled with the following tags: Joint Permit App., Mitigation, ESA Phase 1 farm, Sec. 404 permit, City lot 8-acres, Permits we have, Urban Farm background docs., and Wetland. Daniel Nguyen, the Viet Village Project Manager, offered me these documents at the conclusion of an interview I conducted with him and the Executive Director of the CDC. The files were clearly disorganized and forgotten. My analysis of these documents involved a careful reading through the entire archive, during which I took shorthand notes of repetitive language, key debates and discussions, and the timeline of correspondence between the CDC and the Corps of Engineers. Leaving the documents in the exact order that I found them, I simply copied block quotes that I felt to be representative of the overall language used to describe the project, as well as some key moments in the unfolding drama of the wetland mitigation process. Ultimately, these quotes are used as documentary evidence to both describe a particular process of regulation and governance, and to highlight certain ways of thinking about wetlands, people's relationship to land and to a process of governance, and their methods of categorization and measurement that, in turn, reproduce particular material and discursive outcomes and narratives. To this end, I was especially interested in how the narrative told by the CDC differed from that told by the Corps of Engineers.

As an aid to my interpretation, and to fill in a few blanks, I have conducted a limited series of interviews with people who were integral to the project, from the CDC and from the

Corps of Engineers. There is an obvious split between documents that pertain specifically to Viet Village and those that relate to wetland banking as it is practiced nationally. Since I have only reviewed one particular application of wetland governance, it is entirely conceivable that wetland banks are employed in a variety of manners by different regulatory offices. To the extent that this is a limitation of the study, then we should be careful not to apply conclusions too broadly. Still, I believe that while the practice of wetland regulation may look slightly different from case to case, the effort of the federal government to create a national system of environmental governance suggests that we can discuss its intended implications quite broadly. In the final pages of this introduction I outline the structure of this thesis and my main arguments as they progress chapter by chapter. Within each chapter I attempt to follow Bridge and Jonas's (2002) methodological call to "tack back and forth between theory and specific circumstances," offering in the process both a reflexive and iterative account of the regulation of socio-nature.

In Chapter 1: 'Permanence in Motion,' I lay out an abbreviated socio-history of wetlands. It is immediately clear from this history that there is little that is materially given about the ecological systems defined as 'wetlands.' Wet and dry are products of struggle (and time and place). The chapter charts select flows of water, sediment, people, and money into southern Louisiana. The permanences, the landscape objects and agents that populate the contentious history of wetlands in the state are in motion, constantly blurring boundaries and challenging efforts at constructing a unified narrative (for whatever purpose).

Chapter 2: 'The Financialization of Nature' considers the social relations involved in the circulation of capital. Property, both public and private, plays an instrumental role in constituting a landscape of wetlands, regulation, ownership and its opposite, dispossession. Property itself is a set of institutions, a series of regulations, a site of production and struggle,

and an enviro-technical system – but its history is thankfully beyond the scope of this thesis. Nevertheless, we cannot talk about wetlands and their management without discussing the role of property. I then look at several competing claims to and modes of production inhabiting a specific wetland site – Viet Village Urban Farm. Wetlands are, like most landscapes, sites of production and reproduction. How we define wetlands, what we emphasize about them, and how we measure them opens up a window onto our "processes of valuation," or the permanences we choose to create. Finally, I discuss the process of abstraction and the circulation of value specifically. These things are absolutely necessary for wetland banks to function as a mechanism of mitigation and thus management. This is also necessary for wetland banks to operate as sites of production for surplus value. Without the concept of credit (and the institutions and laws to organize it), wetland banks would literally have nothing to exchange.

Chapter 3: 'Governed Spaces' describes wetlands as managed landscapes. The central question here is for whom are wetlands managed and with what imaginary. I discuss the role of the Army Corps of Engineers as the primary management agent. We cannot abstract or black box the actions of institutions within a single apparatus of the state. Institutions, in short, are the instruments of governance and the subjects of government. And our choice of tools – in this case maps, acres, ecosystem functions, statistics, and soil surveys – informs and is informed by our conception of the object of measurement. Wetlands are literally carved out of the flow of space by the GPS unit and the soil sample. They are made to carry (and circulate) value. This is only possible through the technologies of governance.

Finally, Chapter 4: 'Uneven Erasures' investigates some of the discursive and material ruptures caused by the abstraction from eco-social relations to commodity exchange. Morgan Robertson's work to articulate the multiple absurdities imbedded in this process suggests that the

construct of wetland banking might at some point collapse under the weight of its own contradictions. I consider what landscape imaginaries have been foreclosed by the social relations that make wetland banking possible, and what such exclusions mean for arguments of environmental justice. Here we must ask again and again Harvey's question: what kind of architecture do we wish to create? Of course, as the story of Viet Village Urban Farm suggests, envisioning an alternative architecture is not enough; landscapes and enviro-technical systems are "made and remade and unmade and remade" through the use of power.

The shifting landscape of the delta offers us a particularly fertile ground for an analysis of the eco-social relations that govern the production of landscape and the circulation of capital. I argue that wetland banking, a particular manifestation of a regime of accumulation, produces a certain landscape and regulatory structure through the logic and fetish of the market, which in turn, produces environmental subjects as consumers, or a discursive populism of apparent equals. Ultimately, however, wetland banking fails the broadest tests of environmental justice, discriminating according to class, and thus reproducing an uneven pattern of land access and use. I turn now to a socio-history of wetlands and the flows of people, capital, and biophysical elements that make up the particular landscape of southern Louisiana. In particular, I describe the sedimented enviro-technical system that organizes certain livelihoods in the Versailles community of eastern New Orleans.

1. Permanence in Motion:
Definitions and Migrations

wetland – a lowland area, such as a marsh or swamp, that is saturated with moisture, especially when thought of as the natural habitat of wildlife
-The American Heritage Dictionary (in Vileisis 1997)

Wetland covers a constellation of names and traits, but all generally refer to an ecosystem, land covered by shallow water and dependent on constant or recurrent inundation. A short string of wetland forms: swamp, cienega, marsh, fen, tulare, pocosin, vernal pool, sponge bog, quaking bog.
-Ellen Meloy, Home Ground (2006)

The term *wetlands* means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs and similar areas.
-Part 230 Section 404(b)(1) of the Clean Water Act of 1977

Introduction

Definitions matter in all sorts of ways. They alert us to the subjectivities of their authors. They create containers, categories, and equivalences that enable measurement. Measurement, in turn, enables particular systems of governance and legibility. To define landscape features is to create a landscape, to inscribe patterns of use, and to select a spatio-temporal framework from which to operate. We all do this, albeit at different scales and with varying magnitudes of power and influence. The coerciveness of a produced landscape is different for an institution like the Army Corps of Engineers than it is for a neighborhood church. The power to define, measure, and govern is struggled over, and hence it is distributed unevenly across boundaries of class, race, gender, and nationality.

In this chapter I trace the evolution of wetland definitions, their multiple authors, and the impact they have on flows of people, nonhuman nature, and capital. I examine tensions between the lived experiences of people in particular places and the necessary abstraction that results

from institutional definitions of space. Such abstraction is necessary for governance, as well as for capital accumulation. The result is a peculiar landscape of commensurable and exchangeable difference. In order to articulate the tensions between definitions and subjectivities, I describe the migration and resettlement of a community of Vietnamese refugees in southern Louisiana. The enviro-technical system that these residents establish in New Orleans East is hybrid and adaptive, and at times it comes into open conflict with an institutional apparatus of governance that represents entrenched power and accumulation strategies. As we will see, however, neither of these systems are mutually exclusive, entirely solid, or fixed in the landscape. Permanence is only temporary.

Defining Permanence and Measuring Value

According to Ann Vileisis (1997: 7), ecologists coined the term *wetland* in the 1950s "to replace the imprecise and value-laden *swamp*." This discursive shift was part of a new "ecological ideology" that recognized the importance of wetlands for wildlife habitat, water table regulation, coastal storm buffer, and environmental detoxification. In contrast to these agreeable 'ecosystem services,' swamps had long been the sites of evil spirits, life threatening miasmas, and even moral corruption. The Great Dismal Swamp along the Virginia-North Carolina state line was named in 1728 after Dismus, the thief crucified with Jesus (Vileisis 1997: 36). The reputation of swamps even made its way into the US Supreme Court decision Leovy vs. United States 177 in 1900: "If there is any fact which may be supposed to be known by everybody, and therefore by courts, it is that swamps and stagnant waters are the cause of malarial and malignant fevers, and that the police power is never more legitimately exercised than in removing such nuisances" (in Gardner 2011: 5). Vileisis and others have charted the particular and

controversial history of wetland destruction in the United States since European colonization. By many calculations, the US has 'lost' over 50% of its wetland ecosystem in the last 200 years (Vileisis 1997, Gardner 2011). Though the sheer magnitude of habitat destruction has diminished, we are still losing thousands of acres of wetlands every year. Of course, these statistics beg the question: what counts as a wetland?

From the various definitions offered at the beginning of this chapter, it is clear that the term *wetland* has been constructed as a sort of catchall for what is in fact a diverse collection of material landscapes. Interestingly, the term *swamp* persists (quite prominently) in the series of environments that a wetland is supposed to describe. In these three definitions I count six distinct, though interrelated, factors that define a wetland. Wetlands are supposed to be 'lowland areas' (this is widely and easily disputed), 'saturated with moisture,' and 'natural habitat.' They should also be defined as an 'ecosystem' and be 'covered by shallow water.' Finally, wetlands must be saturated *or* inundated by surface *or* ground water, for a certain 'frequency or duration,' and support vegetation 'adapted to life in saturated soils.' A wetland, then, is contingent upon geographic, temporal, biophysical, and chemical properties. These signifiers highlight the discursive origin of the term and concept as firmly embedded within the Western scientific tradition. Interestingly, the authors of all three definitions at some point find it necessary to remind their audiences that a wetland is actually still just a swamp or bog, that familiar landscape feature that the average citizen tends to avoid, the farmer fills and plows under, and the hunter repairs to on sunny weekend morning. We are all familiar with wetlands; they are, after all, simply places of wet land. In many instances, like in southern Louisiana, they are easily identified border regions between land and water, between solid and unsolid foundations, between stability and flow, the known and unknown. But where do they begin and end? A thing

without a boundary cannot be managed by a modern state founded on measurements and statistical knowledge. To be known in the modern world, a thing must have an edge; it must be held together by an idea, transformed from free-flowing space to identifiable place. The definitions at the beginning of this chapter work to harden the everyday understanding of wet lands into a unified and measurable concept (i.e., an empirically verifiable quality). Wetlands are born simultaneously from unification and abstraction. This process allows all sorts of slippages to occur in the discourse. We will consider some of these slippages in later chapters.

Concurrent with the growing scientific and popular appeal of wetlands through the 1960s and 1970s, terms like *ecosystem services*, *stormwater treatment areas*, *no net loss*, *compensatory mitigation*, *navigable waters*, and *wetland credits* became common language that suggests a hybridization between techno-scientific and regulatory discourse. In order to operationalize the scientific definition of wetlands, regulatory agencies, the courts, and the US Congress produced myriad guidance and opinion documents outlining state policy and enforcement mechanisms for the preservation, rehabilitation, and in some cases, production of wetlands. This was and is an iterative process of definition and bounding, struggled over in the field, in the courtroom, and in the halls of Congress. Ecologists argue that a wetland is a wetland; the courts have argued that a wetland is sometimes a wetland, and the Army Corps of Engineers argues that wetlands are wetlands only if the Corps says so: "One or more indicators of wetland vegetation, hydric soil, and wetland hydrology must be present for an area to be a wetland. If you observe definite indicators of any of the three characteristics, you should seek assistance from either the local Corps District Office or someone who is an expert at making wetland determinations" (US Army Corps of Engineers, New Orleans District). This statement reveals not only the codification of wetland definitions as a technical process, but one in which expert knowledge becomes the

purview of specific institutions tasked with the national management of wetlands as "valuable resources."

Wetland determinations become even more complicated by the fact that some wetlands may not fall under the jurisdiction of federal agencies. This boundary between jurisdictional and non-jurisdictional wetlands has shifted over time as special interests have struggled over particular cases (Gardener 2011). The authority for the federal regulation of wetlands is codified in the Clean Water Act of 1972, which gives the Environmental Protection Agency (EPA) the power to regulate the discharge of pollutants into the waters of the United States. While the EPA was granted the authority to establish regulations, the Army Corps of Engineers was granted the authority to issue or deny discharge permits under Section 404 of the Clean Water Act (CWA). This decision continues to have major implications for the application of wetland regulations. For the moment, however, we're simply concerned with the process of making jurisdictional determinations. The CWA merely prohibits discharges into "navigable waters." Congress, in a moment of clarity, stipulates in Section 502: "The term 'navigable waters' means the waters of the United States, including the territorial seas." The EPA and the Corps quickly issued a series of regulations in order to make the vague language of the CWA more actionable. Corps Regulations 33 CFR 328.3 defines 'waters of the United States' as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

a. Which are our could be used by interstate or foreign travelers for recreational or other purposes; or
b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs 1 through 4 of this section;
6. The territorial seas;
7. Wetlands adjacent to waters identified in paragraphs 1 through 6 of this section…

> …The term adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."

One of the immediately apparent features of this extended definition is that every clause refers to interstate or foreign commerce. This is because the ultimate authority of Congress to regulate wetlands comes from the Commerce Clause in the Constitution. The Commerce Clause gives Congress the ability to regulate actions that have a bearing on interstate trade, since states themselves are obviously not well positioned to institute uniform regulations in this regard. Thus, if the water bodies themselves are not interstate entities, then the entities within them (fish or shellfish) or the entities utilizing them for productive means (industry) must be put to some use related to interstate trade. This is a rather broad definition of 'waters of the United States,' and made broader by one particular type of actor uniquely uninhibited by state lines or bodies of water. In the same regulatory document, the Corps announced that it would also regulate isolated waters that "are or would be used as habitat by other migratory birds which cross state lines" (Gardner 2011: 44). The Migratory Bird Rule was quickly challenged in court by the Solid Waste Agency of Northern Cook County (SWANCC), a consortium of 23 municipalities near Chicago. The Corps had denied SWANCC a permit to dump municipal waste on a 533-acre parcel, which happened to be habitat for 121 species of migratory birds. Several lower courts found in favor of the Corps, citing the Migratory Bird Rule, but the Supreme Court eventually found that the rule violated the intentions of Congress when they wrote that the Clean Water Act

would regulate "navigable waters." With one decision, the Supreme Court invalidated CWA protections for 40 to 60 percent of wetlands in the country, according to the Association of State Wetland Managers (Kusler 2004). This case is just one example, in the 40-year history of federal wetland governance under the Clean Water Act, of state authorities, representing different scales of governance and relative positions of power, challenging one another over the authority to produce a particular landscape. Private interests (corporations and individuals) have also challenged the EPA and the Corps on many an occasion. As the courts rule one way or another, federal agencies review and revise their regulations, defining and redefining the boundaries of wetland governance. This iterative process of definition affects not only the idea of wetlands, but also the landscape itself. Regulation at different scales inscribes patterns of use, misuse, production, and reproduction.

This history also reveals the multiple and fragmented discourses that work to produce wetlands as modern and governable (identifiable, measurable, and commensurable) permanences. Gardner notes that, "isolated waters is a legal concept. Wetland scientists disagree with the premise that wetlands can somehow be isolated from the larger landscapes. The law, however, likes to put things neatly into boxes or categories. Nature is a bit messier" (2011: 48). While I agree that the attempt to isolate particular landscape features is a discursive mechanism necessary for governance, and that ecologists have often differed from lawyers who have often differed from Corps engineers who have differed from farmers on how to define wetlands, and even what language is appropriate to use in such a definition, I would caution against the clean separation of neat law and messy nature. Indeed, the long legal history of wetlands in this country should demonstrate that the law's 'neat' categories are ever in flux. Wetlands can never actually be isolated from their constitutive landscapes, and neither can the

idea of wetlands – whether a scientific category or legal definition – be isolated from the many competing discursive systems that constitute and are constituted by social processes.

Of course, in defining jurisdictional wetlands, however partially and temporarily, we have defined only the territory of governance. We have yet to define the technologies of governance. Section 404 of the CWA instructs the Corps to issue permits for projects that propose to alter existing wetland sites. In essence, these permits allow landowners to make changes to the landscape that will somehow alter the functioning of the present ecosystem. The ultimate purpose of the permits is to identify and authorize the least environmentally damaging course of development. In very few instances, then, does Section 404 foreclose the possibility of development; it merely attempts to channel landscape change in a way that retains particular 'valued' ecosystem functions. In a 1990 Memorandum of Agreement, the EPA and Corps agreed on a mitigation sequence to follow in issuing permits. The sequence requires that proposed projects are first evaluated based upon their ability to *avoid* wetland impacts. If avoidance is deemed impracticable or financially unfeasible, *minimizing* the impacts is the next best option. If projects cannot avoid or minimize all of their impacts, they are then required to *compensate* for them. Compensation is "achieved by applying ecological restoration measures" (Hough and Robertson 2009: 19). This is where wetland banks and wetland credits come in. In later chapters we will discuss specifically how wetland banks use credit to achieve the compensation requirement under the mitigation sequence. For the moment, I simply want to point out what these definitions of wetland governance mean for the kinds of landscapes that are produced.

First, the permit process is specifically a way to minimize certain results of development; it hardly ever seeks to prohibit it outright. Second, the mitigation sequence abstracts ecosystem

functions from particular ecosystems. If the restoration of ecosystem functions in one location can *compensate* for the degradation of ecosystem functions in another location, then the functions themselves must not be particular to any one place. This framing articulates, and thus produces, a particular conception of space and place – one especially adept at managing the contradictions between abstraction and valuation, flow and fixity. At their most basic, the definitions of wetland mitigation and wetlands generally, outlined above, require a commitment to a Cartesian space in the sense that wetland entities can be isolated, named, and measured. This atomization of the landscape is an act of power and production. As Harvey writes, "The power to individuate within a given spatio-temporal frame is associated with the power to name; and naming is a form of power over people and things" (1996: 264). Yet naming alone merely produces difference and disaggregation; it sets up 'permanences' with no opportunity for reconciliation. Harvey generally relies on Whitehead's notion of permanence. He paraphrases thus: "A permanence arises as a system of extensive connection out of processes. Entities achieve relative stability in their bounding and their internal ordering of processes creating space, for a time. Such permanences come to occupy a piece of a space in an exclusive way (for a time) and thereby define a place – their place – (for a time)" (1996: 261). If the definitions of wetland governance merely articulate permanences in the landscape – an *exclusive* occupation of space – then each wetland would require its own institutions and court battles; no definition could stand for all cases of wet land and no ecosystem functions could be abstracted from place. For credit to flow, abstraction must occur.

Harvey summarizes this necessary process of abstraction neatly: "Things had to be individuated, particularized, and isolated as elements over which private property rights to buy and sell could be clearly established. Money came to measure socially necessary labor *time*

through coordinating the trading of values over *space*" (1996: 238). Money, and in further abstraction, credit, thus facilitates the movement of entities or permanences through space and time, allowing formerly exclusive occupations of space to more or less switch places. It is worth quoting Lefebvre at some length here:

> The commodity world brings in its wake certain attitudes towards space, certain actions upon space, even a certain concept of space. Indeed, all the commodity chains, circulatory systems and networks, connected on high by Gold, the god of exchange, do have a distinct homogeneity. Yet each location, each link in a chain of commodities, is occupied by a thing… The space of the commodity may thus be defined as a homogeneity made up of specificities… Space thus understood is both abstract and concrete in character; abstract inasmuch as it has no existence save by virtue of the exchangeability of all its component parts, and concrete inasmuch as it is socially real and as such localized. This is a space, therefore, that is homogenous yet at the same time broken up into fragments" (in Harvey 1996: 273).

Harvey argues that money and the commodity form internalizes a particular kind of spatio-temporality. Wetland mitigation and the whole apparatus of governance associated with it also internalizes a particular spatio-temporality, one that produces a landscape of commensurable and exchangeable difference. Morgan Robertson articulates this spatio-temporality precisely: "Value, if and when it comes to rest in the social abstraction that stands in for the complicated ecosystem, comes from the success of rendering the ecosystem measurable and comparable with other ecosystems, not from nature itself" (2011: 9). Ultimately, though, no one has articulated this social process of valuation and abstraction more clearly and powerfully than former President George H. W. Bush in a speech to Ducks Unlimited in 1989:

> I want to ask you today what the generations to follow will say of us 40 years from now. It could be they'll report the loss of many million acres more, the extinction of species, the disappearance of wilderness and wildlife; or they could report something else. They could report that sometime around 1989 things began to change and that we began to hold on to our parks and refuges and that we protected our species and that in that year the seeds of a new policy about our valuable wetlands were sown, a policy summed up in three simple words: "No net loss" (in Robertson 2000: 1).

This speech is rich in irony, not least of all because Bush used the agricultural metaphor of sowing seeds to describe a new wetland preservation policy when agricultural production has led to greater destruction of wetlands than any other activity. Also of interest is his suggestion that "things needed to change" in order to "hold on" to existing permanences like parks, species, and wetlands. But the most far-reaching statement was the assertion that the new wetland policy of the federal government would be encapsulated in the three words: 'No net loss.' This is a far different statement than 'no loss,' or even 'limited loss.' For 'no net loss' to make any sense whatsoever, a particular set of definitions must be in place. Wetlands must be spatially discrete and measurable; their beingness must be reducible to acres or some other form of quantification; wetlands must be producible landscapes; their values must be transferable across space; their production and transference across space must not be affected by the passage of time. Amazingly, for no net loss to occur, things must change in *place* but remain constant in *time*. Practically speaking, the 'no net loss' policy dictated a mode of wetland mitigation that encouraged the economic rationalization of landscapes via the money form of social exchange. Wetland destruction was encouraged so long as some other unvalued space could be assigned the label of 'wetland.' In other words, the process of valuation is twofold: the initial wetland space is valued for a potential use by the market, and to mobilize the value of the first site, a second space, formerly unvalued or minimally valued, takes on the exchange value of the first site. None of this would be possible without a series of definitions and a concept of spatio-temporality that sets concrete things into motion by appealing to the homogeneity of the money form.

The key to understanding why wetland mitigation, and wetland banking specifically, works for some people and not others, is the recognition that money is a social power not equally accessible to everyone. According to Harvey, "Money as social power therefore depends

critically upon it being a privileged means to control access to wealth. While money as a representation of value can circulate freely, as social power it depends on some sort of territorial configuration and socio-political system (a state apparatus, in short) that renders that particular form of social power hegemonic rather than occasional and dispersed" (1996: 235). Likewise, the benefits of wetland preservation accomplished under the no net loss policy might, in fact, accrue to everyone; the costs, however, are visited upon those who can least afford them. After all, in development, an affordable cost is ultimately an opportunity for further capital accumulation. In the no net loss wetland mitigation policy, money becomes the privileged means to control access to space over time, and hence the conditions of production. And through a particular mode of valuation – a set of definitions, expertise, and technologies for identifying things on the land – the control of particular spaces becomes a means for exchanging value via credit by making other spaces available for production at the right time. We will delve into the processes of credit in more detail in later chapters. My purpose in this discussion was to trace a chain of definitions from wetlands to mitigation policy to spatio-temporal concepts. Embedded in these processes of identification, naming, and valuation are contradictions, slippages, and erasures that we will investigate more fully later on.

In summary, the things on the land that we call wetlands are material-discursive permanences that are both concrete and abstract; at times they flow through circuits of commodity exchange and speculation and at times they cannot be more grounded in the exclusive processes of discrete spaces. They are produced and controlled through the money form of social power and they are also given to changing cultural, scientific, religious, and philosophical meanings. As Harvey suggests, "Both Marx and Bakhtin agree that the human being 'is about the production of meaning' and that meaning is 'the articulation of values" (1996:

270). The uneasy, temporary, and contested meaning and valuation of wetlands in particular spatio-temporalities is the story of humans being on the land. The next section charts select flows of water, sediment, people, and money into southern Louisiana. The permanences, the landscape objects and agents that populate the contentious history of wetlands in the state are in motion, constantly blurring boundaries and challenging efforts at constructing a unified narrative (for whatever purpose).

Migrations

these dredges, instruments of Progress moving untiringly through the forests of tram and mangroves – swamps inhabited until recently by herds of wild elephants… are opening up these waterways to the sun, great life-giving furrows traversing an uninhabited, uncultivated plain. I would like to show this to all denigrators of *l'oeuvre francaise*, these immense expanses… yesterday they were dismal, vast solitudes. Today they are rich patchworks, sumptuous cloisonné in which are set as far as the eye can see the gold and emerald of the peaceful fields.
-Governor-General Pierre Pasquier (in Biggs 2010: 89)

Algonquin languages had many words to refer to specific swamps, including *scuppernong* and *oquaphenoqua* (okefenokee), which has been translated as "land of trembling earth."
-Vileisis (1997: 17)

All the backyards of these houses – all of them – are plowed and planted as if this was some provincial village in Vietnam. Such things are not done in America. In America a vegetable garden is a hobby. Here in Versailles the people of Vietnam are cultivating their backyards as a way of life. And behind the yards is a path and beyond the path is the border of city land along the bayou and on this land the people of Vietnam have planted a community garden stretching down to the lagoon and even now I can see a scattering of conical straw hats there, the women crouched flat-footed and working the garden, and I expect any moment to see a boy riding a water buffalo down the path or perhaps a sampan gliding along the bayou, heading for the South China Sea. Do you understand me? I am living in the past.
-Robert Olen Butler, *A Good Scent from a Strange Mountain*

In the 1500s Algonquin Indians lived up and down the Atlantic seaboard on "land of trembling earth." In 1930, Governor-General Pierre Pasquier gave a speech inaugurating the latest feat of hydraulic engineering in the French colonial Mekong Delta of Vietnam. In 1975,

South Vietnamese refugees fleeing the fall of Saigon settled in Versailles, a suburb of New Orleans. And in 1992, the American author Robert Butler penned the above lines in a series of short stories about the Vietnamese resettlement. *A Good Scent from a Strange Mountain* won a Pulitzer Prize and widespread acclaim. George Packer (1992) of the New York Times wrote this of the book: "Remarkable… for how beautifully it achieves its daring project of making the Vietnamese real." This review is itself remarkable for its bald, if perhaps unintended, assertion that places and people are brought into being through evocation, and more importantly, that only certain (most likely white and male) actors possess the power to bring others into being. This section is about the flows through space and time of people and things, and the shifting alignments that make a particular landscape real, that bring place into being, if only for a time. While I focus on southern Louisiana and the greater New Orleans area most specifically, it should be clear from this introduction that the story of a place is really a story of a web of connections across space, and the story of a place depends upon the stories we tell ourselves about our being in that place.

In 1849, the US Congress passed the first Swamp Land Act, a bill designed to transfer ownership of federally held swamplands to state ownership. The bill granted states "all swamp and overflow lands made unfit thereby for cultivation" (quoted in Vileisis 1997: 73). The goal of the bill was to enable states to turn around and sell their swamplands to private residents (most likely farmers or timber companies) who would both drain the property for productive purposes and increase the local tax base. Louisiana quickly divided the state up into drainage districts and appointed a Board of Swamp Land Commissioners to oversee drainage and levee building in each district. The new taxes generated from privatized swamplands would aid in the construction of levees for the public good. The Swamp Land Act is one example of the

architecture of governance that facilitated the migration of people and capital into the bottomlands and flood plains of southern Louisiana during the 19th and early 20th Centuries. The Act worked in tandem with a number of other technologies, actors, and things on the land to bring into being a historical and sedimented enviro-technical system.

Recall that swamps in America had long been drained because they were reputed to be sites for deadly miasmas that caused sickness and even plague. By the turn of the 19th Century medical scientists and military doctors had named these diseases yellow fever and malaria. They had also linked their germination and propagation to the Anopheles mosquito rather than the mysterious vapors emitted by swamps. Swamps, however, were prime breading grounds for the mosquito, and so the long-held belief that swamps caused disease was not that far off the mark. The history of terror and eventual triumph over malaria and yellow fever is a history of lowland and coastal settlement. It is a history of imperial aggression and military campaigns. J.R. McNeil argues that, "Malaria helped win the American Revolution, and yellow fever helped convince Napoleon to sell the heartland of North America to Jefferson in the Louisiana Purchase of 1803" (2010: 306). By 1905, the US Army, utilizing techniques pioneered in military campaigns in Cuba and Panama, managed to control breading sites for the Anopheles mosquito in cities along the Gulf Coast, thus eliminating yellow fever epidemics. Vileisis describes how this scientific breakthrough reinforced the national drive to clear wetlands while at the same time increasing migration to areas once considered unhealthy and unsafe, places like southern Louisiana.

Enabling technologies worked in tandem to transport, extract, and remake or produce people and things on the land. In the second half of the 19th Century the advent of a national network of railroads not only connected vast hinterlands with urban centers of consumption, but

the very existence of the railroad also created a demand for fuel (initially timber) and thus the production of a particular landscape of extraction and consumption. The annihilation of space by time did not come without expense, and more importantly, it required a particular eco-social system that ordered a multi-scaled landscape in a way conducive to the transformation of material nature. Contemporaneous advances in steam engines and logging equipment helped open up the great Cypress forests of the southern delta to Northern logging interests. Vileisis estimates that logging corporations purchased over 1 million acres of woodland in Louisiana between 1880 and 1888. In addition, millions of acres of swampland were still being sold by Gulf States to private interests for the purposes of logging, clearing, farming, and diking. By the 1920s the old growth trees of the Atchafalaya Basin of Louisiana were all cut, and the logging techniques had disrupted the soil and muck of the swamps to such an extent that little would grow back (Vilesis 1997).

At the same time, oil and gas interests were waking up to the bonanza of the delta. In 1901 the first oil well in Louisiana was opened and by 1909 Standard Oil (now ExxonMobil) opened the first oil refinery outside of Baton Rouge. Raymond Burby details the myriad locational benefits of southern Louisiana to the budding oil and gas industry, including the economic boosterism of local government, the Mississippi River acted as a transportation route, a sink for industrial waste, and a cooling source, abundant supplies of petroleum, natural gas, sulfur, salt, and water were available, and there was a cheap and relatively uneducated resident labor force (in Colten 2000). But like the logging industry, oil and gas interests were not benign forces. Corporations dredged thousands of miles of canals through the swamps and bayous in order to drill wells and lay pipelines. This ever-expanding network of canals weakened the already degraded coastal wetland ecosystem. Storm surges, winds, and tides gradually ate away

at millions of acres of lowland. The growing threat of deadly storm surges coming in from the Gulf and devastating flooding from the Mississippi and its distributaries forced local governments to lobby the federal government for a more cohesive flood protection system. Ironically, the privatization and disaggregation of land produced a patchwork landscape that required a single entity with enormous powers to stitch the private parcels back together into a unified, public landscape of flood control structures and remedial wetlands. Karen O'Neil (2006), in her book *Rivers by Design*, describes the history of U.S. flood control systems in relation to a federalist structure of government that simultaneously derided and advocated for national intervention into local environmental struggles. In 1879, Congress created the Mississippi River Commission, staffed by the Army Corps of Engineers to oversee a delta-wide levee system. The Corps had been present in Louisiana since 1815 where they had been engaged in fort construction following the War of 1812. But from the very beginning the Corps was unabashedly engaged in the work of "adapting the Delta to the requirements of man." In the official history of the New Orleans District of the Corps, Albert Cowdrey (1997: xiv) writes:

> The Delta was a curious landscape. Most of the world was sky. Almost absolutely flat, the land broke up near the sea like a puzzle into the streams and hummocks of the salt marsh. Vulnerable to rising water brought by the river and to the wind and falling water of tropical storms, society required artifice to survive in a region where nature might reasonably have asked a few more eons to finish a work of creation that was incomplete.

Over the next 200 years the Army Corps of Engineers would provide plenty of artifice, but the goal was never merely to survive within an ostensibly natural landscape; rather, the Corps played and continues to play an instrumental role in the production of a landscape suited to capital accumulation, the extraction, transportation, and remaking of resources, and the governance of people and things for the above purposes. While a more developed discussion of the role of the Corps will wait until Chapter 3, I'll now turn to a more in-depth look at the flows

and permanences of a particular group of people and the institutions, knowledges, and livelihood patterns that flowed with them through spatio-temporal networks. By focusing on a specific set of lived experiences we will be able to take the discussion from a theoretical and broadly historical commentary to a more explicitly material and spatialized account of the becoming of a place of wet lands, subjects of governance, and the architecture of a powerful, if momentary enviro-technical system.

I will begin by describing the practices, events, and migrations that led up to the 1975 exodus of Catholic Vietnamese from Vung Tau, a village in the Mekong Delta of southeast Vietnam. I will then trace their journey to New Orleans and resettlement in the Versailles neighborhood. Finally, I'll consider the localized transformations of nature and community that literally inscribed a history of transnational migration into the landscape of the southern Mississippi.

Figure 2: Main street in Village L'Est, chemical plant in background

Exodus, Settlement, and Subjectification

The story of the Vietnamese refugees who settled in New Orleans in 1975 is inseparable from a much longer history involving the migration of Jesuit missionaries to Vietnam in 1615 (PBS, A Village Called Versailles). According to Airriess (2002), Vietnamese Catholics were persecuted by the 'Confucius-based native governments' for xenophobic reasons throughout the 1700s and 1800s. Using the persecution of Catholics as a pretext, Napoleon III invaded Vietnam in 1858. During this period, the majority of Catholic Vietnamese that would eventually settle in New Orleans resided in two villages south of Hanoi in the Red River Delta, Bui Chu and Phat Diem. Airriess notes that these villages were exclusively Catholic: "Centered on the church and mission house, these 'closed' settlements wherein priests organized land clearance and the mission provided welfare services, education, and an environment of social cohesion were called *chretientes* by the French" (Airriess 2002: 232). During the war between the Communist Viet Minh and the French, the priests of these chretientes organized Catholic militias to fight the Viet Minh. After the Geneva Accord in 1954, the residents of Bui Chu and Phat Diem fled Communist-controlled North Vietnam for South Vietnam, whose president was Catholic (PBS, A Village Called Versailles). They settled in two villages south of Saigon named Phuc Tinh and Vung Tau. This first migration was contingent upon the confluence of Jesuit missionaries, French imperialism, Communist-inspired resistance, and the internal coherence and independence of church-centered villages.

These villages were relatively self-sufficient rural communities. Residents were fishers and agriculturalists. Women tended home gardens and sold produce at village markets. The Mekong Delta, like the Mississippi, is an active and shifting environment. Unlike the

Mississippi, however, the river deposits high silt loads as it floods, gradually expanding the overall landmass of the delta. Brackish water circulates through the rivers, distributaries, and canals, flushing toxic alum and garbage from the interior. This is prime rice habitat, though the subtropical environment allows for a wide range of cultivated crops, including bananas. In this shifting landscape the most densely settled areas are thin raised strips on either side of rivers and canals. These rectangular plots, called *miet vuon* (garden strips) extend lengthwise away from narrow water frontages (Biggs 2010: 14). The rivers and canals are the prime mode of transportation, as well as irrigation and flood management. Temporary markets commonly form on silted sandbars (*dos d'ane*) in the middle of canals. Photos of this landscape show a patchwork of rice paddies enclosed by dikes and concentrated villages ringed with trees and shrubs. Biggs notes that, "the Vietnamese agricultural landscape is born of the masses" (109). This agricultural landscape within a hydraulic or deltaic environment is a large-scale example of what Sara Pritchard calls an 'envirotechnical system,' defined as "the historically and culturally specific configurations of intertwined 'ecological' and 'technological' systems, which may be composed of artifacts, practices, people, institutions, and ecologies" (2011: 19). It is a system that is constantly evolving and shifting as the river floods, the monsoon comes, the French gunboats arrive, and the North Vietnamese Catholic villages relocate to the South. Land is made and land is lost; there is no final form.

While suggesting that this landscape is a product of the agricultural masses, David Biggs also notes that the miet vuon (garden strips) were the nodal points at which successive political regimes "established the physical and ideological foundations for governance" (2010: 70). As the French colonial state solidified its rule over the Delta and international markets began circulating capital through the hydraulic grid, the village's authority over land tenure,

appropriation, and distribution, was replaced by colonial decrees and the haphazard logic of commodity prices (Biggs 2010). Successive wars further altered the environment in material and psychological ways. Biggs describes the literal impact of American B-52 bombers on the landscape, the defoliation and birth defects caused by Agent Orange, the shift in canal currents as a result of the widespread adoption of outboard motors as water pumps, and perhaps most importantly, "the monstrous capacities of machines such as steam dredges and gunboats" (10) that literally remade the hydraulic grid itself. All of these events and artifacts produced new enviro-technical systems. It should be clear that these systems are inherently political and ideological. Sara Pritchard identifies 'envirotechnical regimes' as "the institutions, people, ideologies, technologies, and landscapes that together define, justify, build, and maintain a particular envirotechnical system as normative" (2011: 23). Before Vietnamese refugees arrived in New Orleans, American engineers and technical advisors from the U.S. Bureau of Land Management and the Army Corps of Engineers traveled to Vietnam in the 1950s. They helped form the United Nations sponsored Mekong Delta Commission, just as they had formed the Mississippi River Commission years before. Biggs notes how the Army Corps drew on experience from the Mississippi, the Everglades, and the San Joaquin Delta as they created plans for water control schemes in the Mekong.

The territory the Vietnamese refugees fled in 1975 was produced by many of the same institutions that produced the lower Mississippi River and New Orleans especially. The same church, state, and military apparatuses existed in discontinuous territories, linked by political, ideological, technical, and economic networks that spanned oceans. Yet the very normativity of these regimes makes these material connections curiously illusive. Instead we focus on the journey and resettlement of refugees, as if the movement of people from one territory to another

is an unusual occurrence. In no way do I wish to diminish the challenges and hardships that refugees face; rather, I seek to identify the threads of an ironically transnational nation-building regime, of which resettled refugees are only one part. That said, let us return now to the material journey of the refugees themselves, because the journey reveals enduring historical networks of movement and governance.

Mary Nguyen fled Vietnam in 1977 as part of the 2nd wave of refugees, also known as the 'boat people.' She recounted her story for Rick Bragg of the New York Times (2000):

> We walked through the jungle all day, and spent the next 30 days on the ocean in a small boat… My 2-month-old boy had a fever, and I couldn't feed him because I couldn't produce milk for him. I didn't have food to eat myself. He died. I had to put the baby in the ocean. I couldn't leave him in the boat because he would smell. It was the worst day of my life… First, we went to Malaysia. Then, we flew to California. We spent the night there, and the next day we flew to New Orleans. My parents lived there. We haven't lived anywhere else since.

The 2nd wave of migration was harder than the first. The first wave was made up primarily of Vietnamese with ties to the US military, which evacuated in 1975. The first wave of refugees was shepherded through immigrant processing centers on Guam and the Philippines. From there they were flown to one of four military bases in the US: Camp Pendleton, California, Fort Indiantown Gap, Pennsylvania, Eglin Air Force Base, Florida, and Fort Chafee, Arkansas. Airriess (2002) notes that the US government purposely spread refugees to different bases in the hopes that geographical diversity would speed assimilation. Roughly half of the refugees in these camps were Catholic.

Archbishop Philip Hannan of New Orleans visited the refugee camps and invited village priests to resettle in New Orleans. Hannan asked Catholic Charities, a national charity and social service organization, to assist in finding Section 8 housing for the refugees (Leong et al. 2007). Over 75% of the refugees who resettled in New Orleans East were Catholic. Leong et al.

describe how the village priests served as the primary leaders of the new community. "[The priest] is supported by a council that makes parish decisions, with each member representing a specific zone within the parish. Each zone, in turn, is divided into street units called 'hamlets,' with their own representatives and saints" (775). The 2nd wave of refugees, the boat people, did not have the benefit of full military assistance. Many refugees were lost in the South China Sea, including Mary Nguyen's baby. Once they arrived in the US, however, their resettlement pattern was at least partially predetermined by the first wave of settlement. As Nguyen notes, they followed family members who had already established enclaves around the country. The picture that emerges is one of institutionally mediated migration. Both the US military and the Catholic Church were instrumental in determining resettlement patterns. If neither of these institutions had themselves already migrated (in some fashion) to Vietnam, the particular resettlement pattern that emerged in 1975 would never have been. While the particular territory of resettlement might have been new and foreign, the particular governance regime that refugees participated in was, in many ways, quite familiar and had been active in Vietnam for many years.

In the early days of French New Orleans the colonial government devised a land parcel system called the long-lot, or *arpent*. The long-lot was a rectangular parcel of land abutting the river and stretching lengthwise back toward the swamp. This configuration served three purposes: more people had direct access to the river for irrigation and transportation needs, the natural levees on either side of the river provided the highest and driest land for planting and building houses, and riverside landowners were held responsible for building and maintaining a system of flood control levees (Colten 2005). This should sound familiar. Land tenure maps from 18th Century New Orleans (Colten 2005) and 19th Century southern Vietnam (Biggs 2010) are strikingly similar. A society's land use decisions are literal inscriptions of environmental

knowledge and adaptation. In two climatically and hydraulically similar regions, people developed enviro-technical systems that served both social (property ownership and economic security) and environmental (flood control and maximization of dry land) purposes.

Figure 3: Maxent Canal in Village L'Est, backyard gardens on the banks

The resettled Vietnamese of Versailles quickly established individual and community garden plots in backyards and along the banks of the adjacent canal. Airriess and Clawson suggest that the refugees sought to recreate traditional landscapes: "Approximately five thousand ethnic Vietnamese residing in this enclave have created a landscape that reflects their socioeconomic heritage: they were overwhelmingly agrarian and poor in Vietnam" (1994: 16). But Airriess and Clawson also describe a sort of hybrid enviro-technical system; livelihood

practices that worked in Vietnam were adapted to an altered sociocultural context. Residents refrained from planting in their front yards because they quickly realized that a pristine front yard was a symbol of respectability in suburban America. Even so, several attempts to garden lawns around apartment blocks were discontinued by the apartment manager because of their "unsightliness" (Airriess and Clawson 1994: 18). Persistent demand from residents convinced New Orleans Inc., the Louisiana Cooperative Extension Service, and the Associated Catholic Charities to clear a section of land between the levee and Bayou Pratt batture for the purposes of gardening (1994). The additional space allowed residents to transition from subsistence growing to commercial growing. Women sold excess produce at the weekly "wet market" (1994: 28) (perhaps a linguistic memory of the temporary markets held on the dos d'ane in the middle of the canals of the Mekong). Airriess and Clawson suggest that growing for market was an adaptive practice; most vegetable gardens in Vietnam were solely for household consumption.

However, the gardening techniques (including multi-tiered intensive cropping), plant selections, and hand tools were examples of environmental knowledge that traveled with the refugees from Vietnam (Corlett et al. 2003). While most of the plant species grown in the Versailles gardens are familiar to Americans, the specific cultivars are not common in North America. Airriess and Clawson write, "The plants are propagated from seeds obtained directly from Vietnam or purchased from enclave stores, as well as from cuttings received from friends and relatives" (1994: 20). Not only did Vietnamese refugees bring particular cultivation technologies from the Mekong to the Mississippi, but they also brought generations of stored genetic knowledge. Seeds, as many environmental historians have noted, are vast ecological and cultural records of joint human and non-human evolutionary strategies. A complex assemblage of agricultural history, religion, ideology, institutional intervention, and global imperialism

brought new cultivars of cockscomb, pennywort, taro, hemp agrimony, malan, and many others to the United States (Corlett 2003). An investigation of the enviro-technical system of the Versailles neighborhood reveals a process of strategic territorialization by Vietnamese refugees. They established new land tenure arrangements, while at the same time adapting to American property norms. They introduced Vietnamese cultivars and cultivation practices while adapting to commercial markets. Somewhat ironically, the new Vietnamese garden plots on the edge of the bayou are reminiscent of the French long-lot property pattern of the colonial period. Thus, the line between new and foreign vs. historical and indigenous blurs the more we investigate the sedimented land uses of geographically distant but enviro-technically contiguous places.

There is another way in which the preexisting enviro-technical system and development history of Versailles shapes the experience of Vietnamese refugees. Surrounded on three sides by bayou, swamps, and canals, the neighborhood exists as a kind of "cultural island." Airriess (2002) argues that the geographic location of Versailles enforces spatial segregation from other communities in the region. Not only is Versailles surrounded by a wet and shifting environment, but it is the easternmost development of New Orleans. Beyond Versailles is the Bayou Sauvage National Wildlife Refuge, a 22,000-acre preserve established in 1986 (Colten 2005). Originally part of a land purchase by the residential developer, New Orleans East, Bayou Sauvage would have looked very different had the company not done poorly in the economic downturn of the early 80's. Unable to pay for the wetland credits required under Section 404 of the Clean Water Act, the company finally sold the property to another developer, who in turn sold it to the federal government for fair market value. The requirement to purchase credits to develop federally recognized wetlands was a relatively new regulatory mechanism. For many years the government had been subsidizing wetland development (Vileisis 1997). The enduring spatial

isolation of Versailles is thus a product of shifting patterns of environmental governance and a growing desire to preserve wetlands after almost two centuries of incentives to develop them. Airriess suggests that this geographic isolation coupled with several waves of multi-generational Vietnamese immigration to Versailles makes the neighborhood a "durable ethnic enclave" rather than a "port-of-entry ethnic colony" (2002: 236). Yet this geographic isolation is not the same as social or institutional isolation. The remaking of New Orleans after Hurricane Katrina brought the Vietnamese enclave of Village de L'Est into direct negotiation with multiple scales of governance, from the city to the federal government. Within this negotiation we can discern contradictory definitions, processes of valuation, and contours of power.

Today, Village de L'Est is a predominately poor African-American and Vietnamese – American neighborhood. 55% of residents identified as black or African-American in the 2010 Census. Versailles is a several block enclave within the larger neighborhood, and it has one of the highest concentrations of Vietnamese residents in the United States. Overall, 37% of Village de L'Est residents identified as Asian in 2010. Only 3.6% were white. The entire neighborhood was a mere 8000 residents by 2010, down from almost 13,000 ten years ago. Average household income, far below the national average, dropped from $48,000 in 2000 to $39,000 in 2010, and an astonishing 20% of residents earned less than $10,000 a year. Almost 36% of Village de L'Est residents lived in poverty in 2010, as compared to 24% in Orleans Parish and almost 14% in the United States as a whole. 42% of residents had no high school diploma or GED. Residents earn their income from a variety of occupations, from agriculture and fishing, to manufacturing and service industry jobs. Many residents own or work in Vietnamese restaurants, grocery stores, and markets.

As I describe the neighborhood or community of Village de L'Est within this thesis, it is important to keep this context in mind. The history of the neighborhood and its resident population sets it apart from the rest of Orleans Parish, as does its geography. Its non-white population is significantly higher per capita than the Parish average. It is also far poorer and less educated. It's also important to recognize that there isn't a single *community* within Village de L'Est. As in most places, race is an important dividing line. The Vietnamese residents have a distinctly different historical experience than the African-American residents. Because this thesis is interested primarily in the Viet Village Farm Project, when I speak of the community of Village de L'Est I am referring specifically to the Vietnamese community directly surrounding the Mary Queen of Vietnam Church and the proposed site of Viet Village. Several blocks square, this sub-community within Village de L'Est overwhelmingly shares a common refugee history, an agricultural background, and a Catholic faith. Almost all are parishioners of the Mary Queen of Vietnam Church. As in any tight-knit social group there are outliers and there are varying degrees of economic security. Nevertheless, the Vietnamese community of Village de L'Est is tighter than most. Within a few hours after Village de L'Est was evacuated following Hurricane Katrina, Father Vien of the MQVN Church knew which two of his 6,000 parishioners were missing (Wooten 2012).

Conflict: Viet Village and the Rise of Liberation Theology

In 2010, the same shift in federal wetland governance would impact the Versailles community directly. Section 404 of the Clean Water Act would again limit development of New Orleans East, but this time it was an urban community farm developed by the Mary Queen of Vietnam Community Development Corporation (CDC) that would require mitigation credits

(Bruno 2011). The project was only recently abandoned due to the exorbitant cost associated with the mitigation (Daniel Nguyen, personal communication, 11/12/12). The project was designed to allow residents to continue agriculture and aquaculture projects in a non-toxic environment. After Hurricane Katrina, the city government located a toxic storm debris landfill just a mile from the community. Runoff from the landfill drained into the canal on the banks of which Versailles residents' gardens were located (Lydersen 2009). Concerned about the polluted water flowing past their gardens, residents proposed a 28-acre community farm located on clean soil. Having met with the same regulatory challenges as the real estate developer over 20 years before, Versailles residents were left to search for alternative ways to perpetuate a particular livelihood pattern and enviro-technical system.

Figure 4: Billboard for Viet Village Farm Project on cleared lot

Eric Tang recorded an interview with Father Vien, the parish priest and civic leader of Versailles. His response to the post-Katrina landfill and blockage of the urban farm was striking: "Before Katrina, I guess you could call us libertarians. Our attitude toward government was: You don't bother us, and we won't bother you. [But after Katrina] it was impossible for us to not speak… We had a responsibility to contribute, to push for government accountability." Another Vietnamese-American commentator, James Bui, who lives outside of the community said, "This is the first time I've seen a Vietnamese church practicing liberation theology" (Tang 2007). Here is a neighborhood governance institution (the parish church) adapting its discursive regime in order to challenge what is perceived as a failure of federal governance. The Church of Mary Queen of Vietnam, the city government of New Orleans, the Army Corps of Engineers, and the EPA are together co-producing an evolving enviro-technical regime for managing wetlands, cultivated spaces, neighborhood autonomy, and livelihood patterns. In the process, Versailles and the neighborhood church are being remade into a network of national activists speaking out for neighborhood sovereignty, and in some sense, overcoming geographic isolation by creating political linkages to city and federal institutions, as well as adjacent neighborhoods of color. As Airriess et al. (2008: 1340) write, "While these early church centered and organized recovery efforts at the local scale were tied to re-establishing community as a body of people, the church simultaneously engaged in aggressive efforts to contest larger power structures that threatened the community's recovery."

Just as backyard and community gardens have, over time, come to represent a new set of relationships in the Vietnamese community of Versailles, so too has the church. This changing landscape is firmly rooted in material and environmental transformation – a re-territorialization of neighborhood space within the context of a Vietnamese-American identity. In some sense this

new authorship represents a hybrid project of governance, though this would be a simplification of a multi-sited and historically contingent process of home-making (which is itself a type of governance). The Vietnamese-Americans of Versailles have inhabited a space shaped by a multiplicity of forces and institutions – French, Vietnamese, American, Catholic, and hydraulic-ecological. As sedimented landscape, Versailles is not wholly Catholic or Vietnamese, it is not a wholly managed environment (as recent history can attest), and it is governed on multiple scales by myriad institutions. Furthermore, the material transformations written into the landscape itself come to mean different things over time, even for the original authors. The landscape of the lower Mississippi continues to change as its enviro-technical regime changes. Vietnamese refugees have played and continue to play an important role in this change. It is not simply that the Vietnamese have assimilated into American society. There is no rigid container that shapes the material and discursive identity of people and institutions on the move. Rather, movement, survival, and home-making actively inscribe new social and environmental knowledges into places, changing human and non-human nature in the process. For a group of Catholic refugees, the Mekong Delta in 1975 was an impossible place. Versailles, though not inevitable, was part of a contingent history linking people, faith, colonial power, and the environment. In Versailles, refugees constructed new systems of environmental and social knowledge based upon the contingencies of landscape and territory, in effect, claiming the new space as home. One resident, eager to return to Versailles after Hurricane Katrina forced an evacuation, said to reporters, "Vietnam is my first country, and New Orleans is my second country" (Airriess et al. 2008: 1341). Yet not all authorship is equally powerful. Recall that for a New York Times book reviewer, it took an American author, formerly a counter-intelligence officer for the US Army in Vietnam, to 'make the Vietnamese real' (Packer 1992). George Packer, the reviewer, suggests

that Robert Olen Butler, in his book of short stories, succeeds in making the Vietnamese real by putting them front and center through first person narration. They are no longer the mysterious other; rather, Americans become the foil in these stories.

Conclusion

In this chapter I have argued that the temporary permanences linking discontinuous spatio-temporal networks of migration are not nearly so stable as to set up a clear landscape and people of the Mekong vs. a landscape and people of the Mississippi. But an analysis of community place-making can only offer a partial explanation for 'things on the land.' The self-authored landscape of miet vuon (garden strips), and later plans for the Viet Village Urban Farm, articulate with a more powerful enviro-technical system materialized in the landscape by the Army Corps of Engineers, oil and gas pipelines and mitigation banks, local levee districts, and a federal mandate to produce a market for ecosystem services. We have briefly considered how a sedimented history of railroad expansion, Cypress logging, mosquito eradication, war and refugees, and church-based networks of social power have produced a particular landscape in southern Louisiana. Throughout this history the definitions of landscape and the subjectivities of its inhabitants have changed, as have strategies of governance and patterns of livelihood. Now that this history is in place we can begin to articulate the role of environmental regulation and wetland banking in the production of a landscape suited specifically to capital accumulation.

In the next chapter we will consider the social relations involved in the circulation of capital. This includes property, competing modes of production, processes of valuation, and the circulation of credit. Property, both public and private, plays an instrumental role in constituting a landscape of wetlands, regulation, ownership and its opposite, dispossession. Meanwhile,

wetlands are, like most landscapes, sites of production and reproduction. How we define wetlands, what we emphasize about them, and how we measure them opens up a window onto our processes of valuation, or the permanences we choose to create. Finally, I discuss the process of abstraction and the circulation of value specifically. These things are absolutely necessary for wetland banks to function as a mechanism of mitigation and thus management. This is also necessary for wetland banks to operate as sites of production for surplus value. Without the concept of credit (and the institutions and laws to organize it), wetland banks would literally have nothing to exchange. We will consider how these social relations of capital articulate within a particular place – Viet Village Farm Project. This will allow us in later chapters to consider some of the contradictions, slippages, and erasures involved in this particular mode of production and governance. When a powerful enviro-technical system produces a smoothed out landscape capable of efficiently circulating capital, other processes of valuation and modes of production are physically covered over or forced off the land.

2: The Financialization of Nature

[By] incorporating with itself the two primary creators of wealth, labour-power and the land, capital acquires a power of expansion that permits it to augment the elements of its accumulation beyond the limits apparently fixed by its own magnitude, or by the value and the mass of the means of production, already produced in which it has its being.
-Karl Marx, *Capital Vol. 1* (1967: 566)

The death of space is brought about by its being rendered abstract at the hands of capitalism. The world of commodity production and exchange, the logic and strategies of accumulation, the oppressive rule of the state, the extension of transportation and communication networks – these all bring about an abstract space that is simultaneously disconnected from the landscapes of everyday lives, and at the same time crushes existing difference and differences.
-Neil Smith, *Uneven Development* (1984: 226)

[Even] though capitalist production dominates the universe of human (and nonhuman) activity, these activities are not reducible to – not mere expressions of – capital. Instead, we are forced to confront a "complex whole" where production activity oriented to profit-taking for accumulation interdigitates with other value-creating or normative practices. Moreover, we encounter a dense circuitry of humans and nonhumans that capitalist value must traverse in the garb of product, commodity, and money in order to be affirmed.
-Vinay Gidwani, *Capital, Interrupted* (2008: xxiv)

Introduction

Viet Village Urban Farm is an imaginary space. It is also an abstract space, a tangible field of being, and a legal/institutional construct. It circulates as an idea, an (im)possible future, a set of landscape drawings and a series of regulatory correspondence. Meanwhile, the land beneath the idea circulates as a commodity, an investment in the reproduction of capital – the ability to capture surplus-value at a particular space-time. And this is all possible, in part, because the land also circulates water, soil, air, a biotic assemblage, chemicals, and waste. It is not enough to ask what Viet Village Urban Farm is; we must also ask what it sets in motion and what it holds still – what does it capture in a particular space for a time, and what does it allow to accumulate through motion? In this chapter we are concerned with powers of expansion, capital's ability to abstract from material worlds, and, as Gidwani puts it, the interdigitation

between the "dense circuitry of humans and nonhumans that capitalist value must traverse… in order to be affirmed."

I explore how the CDC and the Corps of Engineers deploy competing narratives to frame the Viet Village project. In the correspondence between the two organizations we can see alternative systems of valuation that, in turn, produce the same parcel of land in different ways. Indeed, wetland banking as a regulatory practice is subject to multiple and contradictory narratives within the news, political, and scientific media as well. There are, however, elements of a hegemonic narrative that remain relatively constant. Whether arguing for or against the practice of wetland banking, people and organizations appeal to notions of market efficiency, resource scarcity, and the financialization of nature.

In the second half of this chapter I attempt to trace the circulation of value through the practice of wetland banking. I argue that, in this case, value resides in two specific acts of labor – the labor of measurement and the labor of exclusion. Both actions together produce a subject position – that of a person or entity denied access to a use-value – for whom the product of measurement – the wetland – becomes valuable and hence exchangeable. In other words, it takes both the act of measurement and the act of exclusion to create a commodity capable of bearing value. It is through this process that wetland banks become avenues for the circulation and accumulation of capital. I conclude this discussion by introducing Paradis Mitigation Bank and describing the nature of the credit relationship in wetland banking. Credit, as it turns out, means something rather different in this context than it does on Wall Street.

Viet Village Urban Farm: Values and the Process of Regulation

On my desk are piles of manila folders stuffed full with papers all related to Viet Village Farm Project. Daniel Nguyen, Project Manager, and Tuan Nguyen, Executive Director of the Mary Queen of Vietnam Community Development Corporation allowed me to borrow all of their files on the project, files accumulated over the last five years by a succession of employees. Thousands of pages of environmental reviews, correspondence between staff, Corps engineers, city officials, US Senators, landscape architects, and community members, project visions and timelines, site maps, and wetland mitigation research tell a variety of stories. These documents can be read as the record of the gradual death of an idea; they can be read as a series of legal arguments about the regulation and ownership of land, or the material trace of a network of human relationships, an expression of power and its contestation; it can be read as land use history or the ability of capital to shape land use. None of these readings are more correct than any other, and no doubt there are equally large collections of documents stored at the Army Corps of Engineers New Orleans District Office, and the Mayor's office, and the EPA regional office that tell similar stories, though perhaps inflected with different precise meanings, different handwritten notes and underscored words, different frustrations, or no frustration at all. And even with all this documentation, there are pieces of the public story that can't be verified, rumors about what was said, about property histories and promises that can't be verified by any document, key individuals who are inaccessible. But let's start with what we know.

In a document titled "Viet Village Urban Farm update for EPA & USDA," Lauren Butz, the Project Manager at the time, describes the project vision, objectives, and timeline. She writes (MQVN CDC 2010):

> As part of the comprehensive revitalization movement for sustainability and resiliency in Village de l'Est, Viet Village Urban Farm will be an intensively used

> productive landscape that will include a major produce market, commercial agriculture, and community gardens. These key functions will be supported by a network of green infrastructure and a range of community facilities that encourage the use of the site by everyone in the community.
>
> The farm is designed to be sustainable both culturally and environmentally. Agricultural production will follow sustainable and organic practices, energy will be used efficiently, water will be managed on site, and waste will be composted. The project builds on a long tradition of productive gardening and farming in the Vietnamese community, and combines it with the entrepreneurial spirit and energy of younger generations.

Butz very clearly articulates a vision in which Viet Village is a space of production. In just two paragraphs she uses the word 'production' three times. She describes a particular type of production – one that is sustainable, resilient, agricultural, intensive, culturally specific, entrepreneurial, and efficient. Interestingly, she explicitly links the act of production with a particular space, and the productive space ("landscape") with the movement and transformation of matter and people. Viet Village will be a space in which energy is used efficiently, water is managed, and waste composted. Here Butz is describing a set of managed ecosystem functions or a hybrid biotic community. This "network of green infrastructure" will support the primary functions of the site: a produce market, commercial agriculture, and community gardens. Implicit in these primary functions are further movements and transformations. People must circulate through the market and fields in order for exchange to take place. In some sense, Viet Village was conceived of as a space to capture, channel, and reproduce certain biophysical, cultural, and economic relations. The question, as always, is for whom.

According to Butz, Viet Village is a project designed to reproduce a certain vision of the Vietnamese community of Village de l'Est, a project accomplished by combining the "entrepreneurial spirit and energy of younger generations" with a "long tradition of productive gardening and farming." Here the CDC appears concerned with sustaining a notion of

community through time and across generations. It is also concerned with anchoring this notion of a sustainable and resilient community in place. Allison Truitt writes, "Processes of planning, mapping, and proposing projects have been critical strategies for neighborhood groups to produce their presence or their right to place in New Orleans" (2012: 321). Truitt highlights the word *viability*, "a more urgent version of sustainability," to describe the sometimes block-by-block struggle of city residents to return to their homes after Hurricane Katrina. "Viability, as the recovery process would eventually demonstrate, was not just a matter of geographic elevation or economic feasibility. It was also a matter of historical patterns, social networks, and cultural commitments" (323). In other words, viability was and is a matter of facts-on-the-ground and social power. The story of the Vietnamese community's return to Village de l'Est after Hurricane Katrina is a story of repeated attempts to deploy facts-on-the-ground and social power, sometimes successfully (in combating the city's land fill) and sometimes unsuccessfully (the Farm Project).

In the document cited above, Butz lays out the timeline and action steps for the official project approval of Viet Village Urban Farm. Unsurprisingly, it reads like a depository of acronyms.

- MQVN CDC purchases 20 acres, September 2007
- Civil engineers and landscape architects create renderings and detailed plans, 2007-2009
- Phase I ESA completed, October 2008
- Sec. 404 Clean Water Act application submitted, October 2009
- Sec. 404 Clean Water Act application on public notice, October-November 2009
- Received exemption from Local Coastal Use Permit through City of New Orleans, October 2009
- Public comments received from Corps, December 2009
- Initiated discussion of long-term lease from City of New Orleans for adjacent 8-acres for future farmers' market expansion, January 2010
- Received Water Quality Certification form LDEQ, February 2010
- Phase II ESA Quality Assurance Project Plan approved by EPA and LDEQ, February 2010
- Phase II ESA initiated, March 11, 2010

- Site inspection by Robert Tewis of Corps of Engineers March 11,2010; set a 1:1 mitigation ratio
- Began Paradis Mitigation Bank mitigation credit application form

This timeline and the myriad documents the CDC collected on wetland mitigation and their correspondence with government employees details the gradual education and growing awareness of a community organization run up against successive regulatory impediments. The timeline stops abruptly at the final, uncleared hurdle. But the problems began with the original land purchase. According to Bruno (2011), the CDC purchased the 20-acre parcel from a member of the Mary Queen of Vietnam Church for $1.65 million. Truitt (2012: 333) writes that the owner of the land "assured the CDC that it would be feasible to develop the land into an urban farm." However, this particular parcel was already the site of a failed urban development scheme. In fact, the previous owner had illegally constructed several dirt roads through the swampy property as a precursor to further development, development that never took place. Whether the previous owner knew about the property's wetland jurisdiction or not remains unclear. It is interesting to note that the owner was reported to be a member of the MQVN church, hence a member of the 'community.' The MQVN CDC clearly did not represent every 'member' of the Vietnamese community, and every member of the community was clearly not a low-income agriculturalist. Indeed, a drive through the surrounding housing developments quickly relieves one of the notion that there is a general income equality within Village de l'Est. Ornate French Colonials sit across the street from one-bedroom shotguns. This is not to suggest that a community necessarily needs to be economically homogenous in order to be cohesive, but an agricultural project such as Viet Village Farm Project will speak very differently to those interested in space for subsistence growing vs. those more financially comfortable.

Regardless of whether the previous owner knew of any federal wetland designation, the CDC did not become aware of the limitations of such a designation until after the Phase 1 Environmental Site Assessment had been conducted by a third party more than a year after the purchase of the property. It took the CDC another year to actually submit the application for a 404 permit to the Corps of Engineers. Recall that the permit is required in order to circumvent the federal prohibition against the discharge of dredged or fill material into waters of the United States. After the Corps received the CDC's application for a 404 permit, the project proposal went out for public comment. According to Daniel and Tuan, the only comments the CDC received were from the Corps, the EPA Region 6 office, the Fish and Wildlife Service (FWS), and the Louisiana Department of Environmental Quality (LDEQ). Raul Gutierrez of the EPA wrote:

> The jurisdictional wetlands that would be impacted by this project not only provide good quality habitat for indigenous and migratory avian species as well as a variety of mammals but also perform valuable water quality maintenance functions by removing excess nutrients and pollutants from the water. They also provide floodwater storage. As you are aware, wetland areas such as those proposed to be impacted have experienced a tremendous decline in Louisiana. The 404(b)(1) Guidelines prohibit the discharge of dredged or fill material into waters of the United States, including wetlands, if there is a practicable alternative.
>
> The EPA does not object to the project provided that the applicant has satisfied the requirements of the 404(b)(1) Guidelines. This should include providing compensatory mitigation within the project watershed for all unavoidable wetland impacts that should fully offset all lost wetland functions and values (memo MVN-2009-01191-ETT 10/28/2009).

Both the FWS and the LDEQ use almost identical language to describe the potential site impacts and the actions they recommend be taken by the CDC to appropriately compensate for the damages to ecosystem functions. Very clearly these federal and state agencies evaluate the proposed land use in a very different way than the community development corporation. The

Guidelines themselves necessarily consider future land use decisions in light of historical land use. In this case, the labels 'wetland' and 'waters of the United States' tie the parcel into a whole regulatory apparatus at least ostensibly designed to ensure the 'no net loss' of wetlands in the United States. The regulatory process shifts both the spatial and temporal scale of valuation, situating the Viet Village land parcel within a national history of wetland degradation. Additionally, both the EPA and LDEQ comments contain regional concerns as well – the EPA notes that Louisiana in particular has experienced a "tremendous decline" in wetlands similar to the ones under consideration for development. Implicit in the expansion of the spatial-temporal scale of valuation is an assumption by the regulatory agencies that the wetland under consideration is in some way comparable to other spaces both geographically and temporally distant. The CDC on the other hand, is clearly not at all concerned or even interested in the swamps of Georgia or the prairie potholes of 1800. This issue of comparability and scalar disjunction is one we will return to shortly.

The valuation of the site by the agencies and the CDC also diverges in terms of the substance of the site itself. In the words of Pete Serio, Chief of the Regulatory Branch of the Operations Division of the Eastern Evaluation Section of the COE:

> The decision of whether to issue a permit will be based on an evaluation of the probable impacts on the public interest, including cumulative impacts of the proposed activity, the need for the project and its intended use. All factors which may be relevant to your proposal must be considered, these factors include: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, shore erosion and accretion, recreation, water supply and conservation, water quality, safety, and considerations of property ownership (Corps memo, MVN-2009-1191-ETT 12/10/2009).

Anyone unsure of the definition of shore accretion and floodplain values can be forgiven for feeling slightly overwhelmed by the scope of concerns the applicant is expected to address.

Furthermore, it is entirely unclear how a proposed project will be scored on the above considerations. Perhaps the site is so degraded that a project proposing a certain amount of dredging will help stabilize "floodplain values" or "water quality." In fact, this is exactly what the CDC assumed it was doing with the Viet Village Farm Project. Lauren Butz's response to the Corps' comments admits to a bit of regulatory culture shock. On March 11, 2010, she wrote:

> Please let me clarify the purpose of the proposed Viet Village Urban Farm project. On behalf of our community, both the Vietnamese-Americans and the Greater New Orleans residents, we wish *to provide a safe, healthy, community space for the sustainable growing, harvesting and retail of healthy foods for the social, cultural, educational, and economic benefit of both the adjacent community and the Greater New Orleans area.* MQVN CDC has site-control of the 20-acres proposed for the farm site.
>
> We are aware of the need for mitigation but I emphasize that MQVN CDC is a not-for-profit organization and the funding for the project will be coming from grants, foundations, and donations, all dedicated to supporting our residents…
>
> …The proposed project site was slated for a housing development until it was bought by MQVN CDC in 2007. The site has a history of minor illegal dumping and is an isolated, compromised wetland. Turning it into a productive, sustainable, organic urban farm will improve the use of the space for the community (emphasis in original).

In both this letter and in an interview with Lauren, she expresses disbelief at how the Corps would not take into account the *positive* environmental and social changes the project would create for the community and the land. In an interview with the author dated 12/9/12, Lauren says: "People had been dumping in these 20 acres for a long time. We considered them degraded wetlands. It was flooded by Katrina and contaminated with Benzene. We felt like we'd be cleaning up the property. It felt like we were improving it. To have to then pay a bank $400,000 to mitigate…" At this point she trailed off, leaving the thought unfinished.

In these excerpts Lauren makes the CDC's position clear. They believe the Viet Village project is an obvious social, environmental, and economic improvement to a property that is

sitting vacant and contaminated (with benzene and trash). There is also clear frustration when the Corps asks them to justify their site selection because the proposed project is not water-dependent. The CDC, after all, had already purchased the 20 acres for $1.65 million, unaware of the regulatory hurdles involved in wetland development. Landscape architects Spackman, Mossop & Michaels, the Tulane City Center, and the New Orleans Food and Farm Network had already helped the CDC develop plans for the project, plans that in 2008 won the Analysis and Planning Award for Excellence from the American Society of Landscape Architects. One of the architects had even called it "the sexiest project in the universe" (Truitt 2012: 333). How could the sexiest project in the universe be considered by the Army Corps of Engineers to be a degradation of current ecological functions? Obviously different systems of valuation were at work. The Corps, following the EPA, the FWS, and the LDEQ, ruled that because the site provided habitat for fish and wildlife, provided storm water absorption, and because its waters drained into a navigable waterway and hence waters of the United States, any change from current land use required certain compensatory mitigation.

I should emphasize that this determination is not at all based upon some understanding of a natural vs. constructed environment. First, the environmental site assessments clearly indicate that the site had already been contaminated with benzene (source uncertain), numerous trash dumps, and non-permitted roads.

Figure 5 and 6: Dump sites on the proposed Viet Village Farm lot

Secondly, and more importantly, the Corps' jurisdictional determination – the assessment that determined the site was a wetland governed by the Clean Water Act's definition of a navigable

waterway of the United States – describes the relationship between the site and the closest traditional navigable water (TNW) as follows (Serio 4/15/09):

> General flow relationship with Non-TNW:
> Flow is: intermittent flow. Explain: Wetland will flow following rain events and during periods of high water table.
>
> Surface flow is: Confined
> Characteristics: Flow from wetland then culverted to unnamed non-RPW [relatively permanent waters].
>
> Wetland Adjacency Determination with Non-TNW:
> Not directly abutting
> Discrete wetland hydrologic connection. Explain: Hydrology maintained via ***manmade conveyance*** (bold and italics added).

In other words, the Viet Village site is a jurisdictional wetland because after heavy rains water will flow from the site through a "manmade" ditch into another canal classified as a non-relatively permanent waterway and finally into a traditional navigable waterway. Without the "manmade conveyance" the site would be an isolated wetland and hence a non-jurisdictional property. At Viet Village Urban Farm an imagined space collided with the abstract space of a federal regulatory apparatus and the sedimented land uses of a particular and tangible place.

In the Corps' own response to the CDC's project proposal they lay out a three-step mitigation process that includes avoidance, minimization, and compensatory mitigation. They clearly indicate that each step must be satisfied before the Corps can consider the following step. In other words, the CDC had to first prove that there was not another site suitable for the urban farm that was not a jurisdictional wetland (avoidance). After successfully rebutting this assumption the CDC had to describe how they would minimize site impact through site design and appropriate technology. Only after these steps were taken could the Corps rule on compensatory mitigation, which they ultimately did. In the same memo, Serio clarifies this guidance: "Although the Corps cannot fully evaluate a compensatory mitigation proposal, prior

to successfully completing the above avoidance and minimization steps, it may be beneficial for you to consider the following and to submit a mitigation proposal that adequately compensates the functions and values that would result from unavoidable wetland impacts" (MVN-2009-1191-ETT 12/10/2009). The CDC satisfied the requirements for avoidance and minimization by indicating that the selected site was within walking distance of the community center, it was the appropriate size for the project, it was already owned by the CDC, and no other available site was as appropriately located. They further described minimization technologies that included bioswales, organic farming practices, solar power, stormwater management through gravity-fed canals, composting, permeable surfaces, and a wetland education center. In addition, they altered their site plan by removing a proposed sports field since it was a nonessential feature (Butz, response to Corps memo, 3/11/2010). At this point the Corps was legally allowed to proceed with a compensatory mitigation ruling in which the CDC would be required to purchase a certain number of wetland credits from a certified wetland bank in order to 'compensate' for the onsite degradation of existing wetlands.

Paradis Mitigation Bank: Whose Credit Anyway?

"When you purchase a wetland credit it looks like you've done nothing when you spend $400,000. There is still a net loss so it doesn't make a lot of sense. Trying to explain that to a community member that you've just spent that over there to protect wetlands so we can use these. Weren't they already being protected by the wetland bank?" (Lauren Butz, personal communication, 12/9/12)

At roughly 7,100 acres Paradis Mitigation Bank is the largest active bank in Louisiana and one of the largest in the country. Paradis credits are available for bottomland hardwood and cypress swamp mitigation within the Barataria Basin.

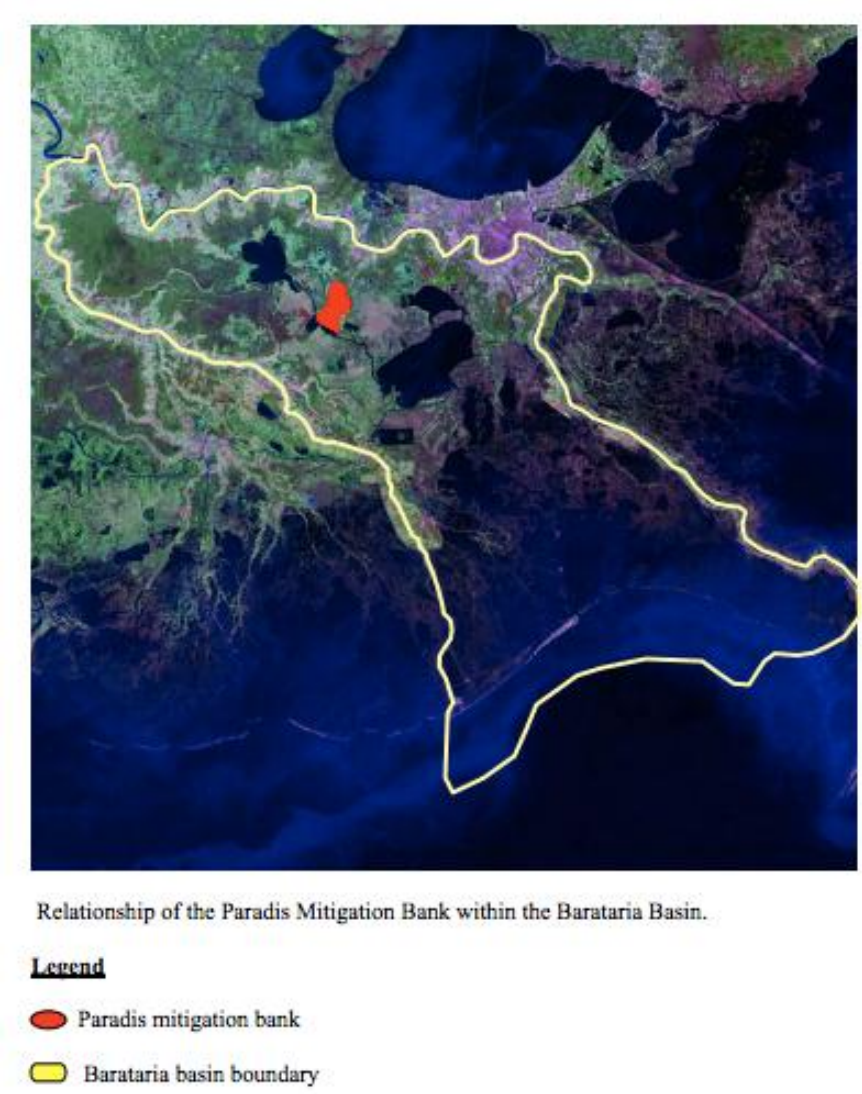

Figure 7: Location of Paradis Mitigation Bank and Barataria Basin (source: https://upstream.chevron.com/paradis/index.asp)

New Orleans and Viet Village Urban Farm are not within the Barataria Basin, but the Corps approved mitigation credits from Paradis for the project anyway. A glance at the mitigation bank's website will tell you that the site is sponsored by Chevron but was designed by a "a team of wetland ecologists, soils experts and a Mitigation Bank Review Team (MBRT) from the New Orleans District Corps of Engineers, U.S. Fish and Wildlife Service, Louisiana Department of Wildlife and Fisheries and the Environmental Protection Agency"

(https://upstream.chevron.com/paradis/synopsis.asp, accessed 1/13/13). The proposed use of Paradis credits for the Viet Village Project occurs as a series of slippages – between past and present, between the Barataria Basin and Bayou Sauvage, between regulation and liability, between government and corporation, and between urban and rural.

In the above quote Lauren Butz asks the obvious question: aren't those other wetlands already being protected by the wetland bank? How is that 'no net loss?' She is articulating a spatio-temporal slippage. The abstraction inherent in substituting one location for another through a simple acres-to-dollars measure is obvious, but the abstract temporality is a little harder to grasp. In the case of Paradis, Chevron has regenerated wetlands on a site that the company had previously degraded through oil exploration. For the purposes of the no net loss policy, this counts as an addition to total wetland acreage. Clearly the damage done prior to a certain year is not included in the calculation. Past development/degradation becomes a resource tradable for future development. Of course, Chevron did need to invest in some site remediation in order to qualify as a seller of credit, but this investment was far less than the exchange-value of product previously removed from the site. And according to the bank's own website, the technical work of remediation was to some degree accomplished by a team of government scientists and engineers. Furthermore, Gardner (2011) makes the point that what is actually traded in a wetland credit sale is liability for a regulatory violation. Liability suggests some kind of future action, which may or may not occur. The buyer of credit is insuring their future actions against any regulatory violation. The seller of credit is assuming the responsibility for mitigation, which they themselves may or may not fulfill properly. There is no guarantee that the wetland bank will construct a 'successful' and sustainable wetland, or that they will maintain the wetland indefinitely. In some sense then, past land use is bundled and traded as a promise of

a particular type of future land use to someone wishing to undertake a present land use at odds with the recent history of that particular site.

The word *credit* comes from the Latin *credo*, translated as 'I believe.' This is a particularly apt translation in the case of wetland credit as the trading of such a commodity requires a certain willingness to inhabit an abstract space, a certain belief in or at least resignation to a fictitious market. And yet wetland credit actually operates in a way almost exactly opposite that of regular financial credit. When an individual goes to their bank to take out a loan they receive capital in the present in exchange for the promise of future remuneration. The bank earns interest on the satisfaction of the immediate desires of the debtor. In wetland banking however, the seller of credit receives capital immediately for the trade and the buyer of credit pays in the present for the satisfaction of desire. Once this transaction is complete the relationship is finished. The seller, however, is the one with future obligations – they have agreed to construct or maintain a certain acreage of wetland for a stipulated period of time. At this point, the wetland bank is the debtor and the US government becomes the creditor. The government has theoretically set up a national 'bank' of wetlands with the stipulation that a net zero balance be maintained in perpetuity. Wetland banks enter into an arrangement with the federal government in which they are allowed to sell a fictitious commodity (wetland credits) in exchange for a promise to replenish the nation's wetland acreage. Hence the true credit relationship lies between the wetland bank and the federal government. The wetland developer who purchases wetland credits is doing no more than buying an exemption from an environmental regulation. The wetland bank has a truly captive audience for their financial product, thanks to the federal shift in environmental governance strategies. Having followed the wetland governance process to this point we will now consider the discursive processes of

governance that established wetland banking as a legitimate social practice and a simultaneously concrete yet abstract space.

The Uneven Topography of Wetland Banking

> Thus all that appears to our eyes is a truth conceived as a richness, a fecundity, a gentle and insidiously universal force, and in contrast we are unaware of the will to truth, that prodigious machinery designed to exclude. (Foucault 1981: 56)

In 1972, the US Congress passed the Clean Water Act with the stated objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (Gardner 2011: 209). Congress gave the Environmental Protection Agency (EPA) and the Army Corps of Engineers (ACE) authority to enforce the Clean Water Act. Enforcement means issuing regulatory guidelines, distributing permits for development projects that negatively impact 'the Nation's waters,' and mandating mitigation procedures. The EPA issued the following statement under Section 404: Guidelines for Specification of Disposal Sites for Dredged or Fill Material, "From a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by these Guidelines. The guiding principle should be that degradation or destruction of special sites may represent an irreversible loss of valuable aquatic resources" (Gardner 2011: 211). These documents represent the emergence of a powerful federal environmental discourse that was to have long-term impacts on the way in which the nation thought about and managed its land and natural resources. From these two statements, we learn the following: humans have the knowledge and power to "restore" and "maintain" ecological systems; we know how to measure and judge the health of the environment; wetlands possess "valuable resources," thus avoiding their degradation is a national priority; and the

federal government has developed an institutional framework with the knowledge and authority to regulate the health of the nation's aquatic environments. In other words, these documents spell out the proper relationship between the population of the United States and the nation's environmental resources. Fairclough (2003) would label these texts a genre of governance, a particular type of discourse that specializes in "action at a distance." This genre of governance works through the practice of institutions, but it is also circulated by the mass media, what Fairclough calls an apparatus of governance, – "a media genre… recontextualizes and transforms other social practices, such as politics and government, and is in turn recontextualized in the texts and interactions of different practices, including, crucially, everyday life, where it contributes to the shaping of how we live, and the meanings we give to our lives" (2003: 34). Foucault would say that these genres of government, along with the apparatus of governance, inscribe certain regimes of truth through which we know the world and ourselves.

In 1988, Vice President Bush gave a campaign speech to a group of duck hunters, in which he set the tone for wetland mitigation for decades to come: "My position on wetlands is straightforward: All existing wetlands, no matter how small, should be preserved" (Gardner 2011: 35). After winning the election, Bush made 'no net loss' of wetlands his official environmental policy. There was a subtle shift of meaning here that had far-ranging consequences. The phrase, 'no *net* loss,' effectively freed regulatory agencies from the tyranny of the particular: as long as the statistics showed a steady national acreage of wetlands, the ACE could approve the destruction of individual wetlands in one location as long as they were somehow replaced by wetlands elsewhere. This moment was transformational in the discourse of environmental governance; it enabled the widespread institutionalization and operationalization of environmental economics, or the valuation and exchange of ecosystem

services on a national scale. These ideas had been gaining traction for some time as a method for preserving valuable natural resources. The language of environmental economics was based on an increasingly powerful and discerning ecological science that could measure the biophysical processes of wetlands and describe certain beneficial 'ecological functions' like water filtration, wildlife habitat, flood mitigation, and storm surge protection (Gardner 2011). Of course, all of these processes occur in particular geographic locations. According to President Bush, however, site specificity didn't matter for environmental governance, as long as total acreage remained stable. This policy shift enabled a new practice of governance to reshape our relationship with wetlands in the United States.

In 1995, the EPA and the ACE issued joint guidelines for evaluating permit applications in which they, for the first time, lay out definitions for wetland banking and wetland credits. A mitigation bank "means a site, or suite of sites, where resources are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor." A credit "means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved" (Gardner 2011: 218). Several things occur in these texts. We can identify what Fairclough (2003) calls 'interdiscursivity' and 'intertextuality.' Within this genre of governance, there is a certain hybridity of ecological and economic discourse. Recall that in the 1972 text of the Clean Water Act, wetlands were sources of 'value,' and not necessarily financial value. In 1995, the EPA and the ACE use words like 'bank,'

'credit,' and 'compensatory.' Credits can be sold and obligations transferred. The term 'bank' is not an innocent word choice. Banks imply financial value, the capacity to store, trade, and invest in credit, safety and perpetuity, borrowing, and profit. Furthermore, these texts produce particular subjects "who in some way personify the discourse" (Hall 1997: 45). In prior environmental discourse there were government regulators, landowners, and developers. The 1995 document produced new subject-positions in the form of wetland bankers (government, nonprofit and for-profit) and permittees who purchase mitigation credits. The practice of wetland mitigation was transformed from a three-way relationship between wetland, regulatory institution, and land developer, into a four-way relationship between wetland, regulatory institution, buyer of credit, and seller of credit. This new relationship is overtly and unapologetically economic in its orientation.

A 2006 article in *Ecosystem Marketplace* reports on Chevron's new wetland bank in Paradis, Louisiana. The title of the journal itself is an indication of the new environmental economics, as is the following line: "Chevron appreciates the land's beauty and the ecological value of preserving it as a wetland, but economic rather than ecological incentives held the greatest sway in spurring this Fortune 100 Corporation's decision to expand into the field of mitigation banking" (Kenny 2006). The next section of the article, subtitled 'From Black Gold to Green Gold,' documents how Chevron drilled oil at the site for the last 60 years. Recently, however, the site went dry and Chevron looked for a new productive use for the land. The water table was too high for development, so Chevron decided to turn it into a wetland bank. "Chevron has, in a sense, struck oil once again," Kenny tells us. Further on, another subtitle alerts the reader to the fact that this practice is here to stay; it's 'The New American Way.' Kenny describes how many new wetland bankers are, in fact, oil and gas companies with extra

property on their hands: “Similar to the Paradis property, the land converted into wetland banks typically had a previous history as a site for oil exploration but no longer has any mineral value” (Kenny 2006). This article exemplifies a powerful new narrative that inscribes a market-based governance strategy into existing political economic circuits. Oil and gas companies exploit land for mineral wealth before recirculating their property as the site for valuable ‘ecological services.’ The national environmental governance genre has been recontextualized in Louisiana in such a way that a company like Chevron can say they care for the environment while simultaneously exploiting it for years. In fact, caring for the environment has become synonymous with marketing ecosystem services in the form of regulatory credit. A review of articles published in the *Times-Picayune*, a New Orleans based newspaper, suggests that not everyone is so sanguine about wetland banking, though not necessarily for the same reasons (see Schleifstein 2012a,b,c, Harvey 2012, DeGregorio 2010, Charpentier 2007).

Wetland banking as environmental governance is by no means hegemonic, even though it represents state policy. Oliver Houck, an environmental law professor at Tulane University, believes mitigation is a ‘charade’: “What we have is a continuing net loss under the slogan of ‘no net loss.’ You have a couple of fig leaves out there called mitigation, but the result is this extraordinary act of hari-kari, this extraordinary amount of damage” (DeGregorio 2010). On the opposite side of the fence, U.S. Senator David Vitter campaigned against a new mitigation formula employed by the Corps of Engineers. At a public meeting in New Orleans, Vitter said, “This has put mitigation burden and cost for any development in the area through the roof literally tripling that cost in many cases. I’ve had meeting after meeting with both public and private entities that have told me this formula will make several significant, important projects simply unaffordable and undoable” (Schleifstein 2012c). In a similar vein, Christine Harvey

reported for the *Times-Picayune* on a failed supermarket development, citing excessive wetland mitigation costs. St. Tammany Parish officials were frustrated because much of the parish is classified as wetland by the ACE, "even the acres of pine forest that appear high and dry to the naked eye" (Harvey 2012). Parish officials have two reasons to complain. First, only one mitigation bank exists within their watershed: "[T]he fact that the parish has just one mitigation bank from which to buy mitigation credits means there is no competition and, therefore, no concessions on price" (Harvey 2010). Secondly, officials worry that developers will move to neighboring Tangipahoa Parish, "which has a higher overall elevation," where it would cost less to mitigate.

These quotes demonstrate that wetland banking is afforded variable legitimacy based upon different subject-positions. Some environmentalists, like Oliver Houck, deny that wetland banking works at all, citing a scientific report from the US Geologic Survey that suggests there is no evidence that a created wetland replaces the ecological functions of a destroyed wetland (DeGregorio 2010). On the other hand, pro-development types like David Vitter and concerned parish officials claim that wetland mitigation is too costly for business, citing examples of developer flight. They cite the uneven (and unfair) topographical advantage afforded to other parishes and other states due to an excessive regulatory regime. They deploy the 'authority' of free-market competition, demanding a choice of wetland banks and resisting what they see as a process of regulatory taking by the federal government. This narrative simultaneously produces the notion of resource scarcity while it produces the solution: privatization, de-regulation, globalization, and the financialization of everything (Bakker 2003). From this perspective, wetland banking is both rational and ethical. We'll now consider the role of wetland banking in capitalist social relations through the lens of a Marxist critique.

Catching Fish in Waters that Contain None: The Circulation of Value

> "The impossibility of complete abstraction is often less problematic than the real violence executed by attempted abstractions – many of which…fail at least in part. It is one thing to point out the abundant absurdities in reducing ecosystems to commodities. But to note this is only the first step, says Blomley: 'to stop here is to risk ignoring the ways in which such absurdities organize the world for us in often brutally efficient and powerful ways" (Robertson 2011: 12).

Viet Village exists materially as a piece of land, bounded by lines of demarcation. The land, as it is envisioned juridically and socially, to the extent that we internalize these legal definitions, is territorialized by a set of private property relations. These relations denote ownership and a set of explicit rights of use and exclusion. Land becomes associated with a whole constellation of social arrangements. We view the landscape through this prism of relations. In short, we imagine worlds, and through our labor, we produce them. Neil Smith offers some valuable insight into this process of world-making. For Smith (1984), capitalist social relations, that is, production for exchange through a process of exploitation of labor by capital, actually produce the natural world. In other words, "the relation with nature develops along with the development of the social relations, and insofar as the latter are contradictory, so too is the relation with nature" (1984: 68). This process develops gradually along with the institutionalization of private property and the separation of production for use-value and production for exchange-value. "In an exchange economy, the appropriation of nature is increasingly regulated by social forms and institutions, and in this way, human beings begin to produce more than just the immediate nature of their existence" (1984: 60). By this Smith means that social divisions structure access to and use of nature (or land). Additionally, I take this to mean that, through this differentiated process of the appropriation of nature, people produce and

reproduce their own social divisions, and thus, inherent in the appropriation of nature is the appropriation and dispossession of humans.

Let's return for a moment to Viet Village. The CDC purchased a set of rights to a piece of land, including the right of exclusion. Essentially, the land had been traded from one private owner to another. The intention of the CDC was to 'develop' the land into an urban farm. There are a whole set of implicit assumptions associated with the term 'development.' Often the implication is that the land to be developed is vacant, or at the very least, whatever exists presently will be significantly altered so as to cohere to a different imagination of space. Development then, involves the material application, or labor, of ideas on space. It is also bound up with certain ways of thinking about pre-development space. Since development is driven by a desire to alter space so as to realize the anticipated value believed to reside in the developed space, we can analyze competing conceptions of development as contestations over value. Or rather, ideas about development are necessarily ideas about how we define and measure value. Recall that, for Benton, development is "not a unilinear process of quantitative expansion of the forces of production," but, "a range of qualitatively different ways of realizing human social possibilities" (1989: 79). What, then, is the particular 'possibility-space' envisioned by the Viet Village Urban Farm project? And how does this space conflict with the 'imaginative geographies' of capitalist value? For, as Perreault and Valdivia (2010: 691) remind us, resource conflicts are not only about resources, but also the "terms of citizenship, the nation, rights and identity."

Neil Smith (1984) offers a powerful image of the relationship between capital and nature: "capital stalks the earth in search of material resources; nature becomes a universal means of production in the sense that it not only provides the subjects, objects, and instruments of

production, but is also in its totality an appendage to the production process. Thus it 'appears paradoxical to assert, that uncaught fish, for instance, are a means of production in the fishing industry. But hitherto no one has discovered the art of catching fish in waters that contain none" (1984: 71). Smith is again asserting the social production of nature, whereby capital engages all of nature in the production process, even anticipating the exploitation of future resources, because, after all, resources are defined socially. In a poetic, if somewhat cryptic rejoinder, Mazen Labban (2011) describes the production and circulation of fictitious commodities through financial markets, alluding to the somewhat fuzzy relationship between the 'physical space of nature' and the 'social space of capital.' For Labban, "capital has perfected the 'art of catching fish in waters that contain none'… and, if need be, of catching fish in places where there is no fish, circulating the same fictitious fish several times over in the world market without the fish ever leaving, or having been in the water to start with" (2011: 258). When we speak of a fish in this context, what we are really considering is a material (or fictitious) representation of value, or a particular measure of value searching for realization. The purpose of such mental gymnastics is to penetrate the fetishization of the abstracted form so as to understand the process whereby "social abstractions" become "bearers of value" in the first place, to use Robertson's (2011) language. Hence the key point: "Creating and attesting to value is the process of creating social abstractions that circulate in capitalist accumulation; but the work must be done to convince observers that these simplifications are adequate to the task of representation" (Robertson 2011: 11). In our case wetland mitigation credits are supposed to correlate to some specific function that *un-developed* wetlands inherently possess. As we will see, this is a truly tenuous proposition, and it is intimately tied up with competing conceptions of (un)development.

At this point we have some sense of how wetland banking is supposed to work. Recall that banking schemes are supposed to ensure 'no net loss' of wetlands at the national scale. Obviously, in order to assess wetland banking in relation to this goal, we must have some generally accepted definition of wetlands, and we must also have some measurement for them, some way to equate one wetland to another. As Robertson (2011) so emphatically demonstrates, this is no easy task. In fact, it is accomplished only to the extent that we, as a social body, accept on faith the categories and qualities produced by the technical (and creative) languages of science and economy. The collusion between these two languages is sometimes shockingly apparent, as in the National Research Council's (2005) request that ecologists ensure that "the output from ecological modeling is in a form that can be used as an input into economic analysis" (quoted in Robertson 2011: 5).

Robertson identifies four steps in this process of ecological-economic modeling: classification, categorization, unbundling, and stacking. Classification refers to the "creation of an ordered and hierarchical taxonomy with which to describe nature" (2011: 6). The purpose is to identify and name the object, to hold it still, make it accessible to regulators and market abstractions. In our case, this process involves the bounding of wetlands and the identification of them as containing value. The ecological language suggests that wetlands contain value to the extent that they provide critical ecosystem functions, such as water purification, unique wildlife habitat, and coastal buffers. The second act of valuation, classification, allows us to recognize the presence of the wetland as a discrete entity. Categorization is the work of determining how valuable it is. This is necessarily a process of simplifying complex flows into a limited number of broad categories. This simplification process requires the ongoing and vocal support of authoritative and technical languages. As Robertson says, "wetland credit commodities

circulate, but the process of asserting and testifying to their equivalence and comparability with other wetland credits is terribly complicated, and almost bespoke" (2011: 8). In other words, value sticks to wetland credits uneasily, and must be continually entrenched moment by moment, place by place.

Unbundling, the third act, describes a process in which the classified and categorized "semantic containers and the values therein are brought to market as particular produced, financializable, social abstractions" (Robertson 2011: 8). This is done by assigning discrete values to multiple functions within the broad container labeled 'wetland.' Ideally, these discrete values would circulate simultaneously in various markets, all with independent systems of measurement. In practice, it is often the case that these 'discrete' functions are all measured by total acreage. The final step of commodification, then, is the stacking or re-bundling of previous functions to be sold to different parties simultaneously (Robertson 2011). Robertson concludes that "value, if an when it comes to rest in the social abstraction that stands in for the complicated ecosystem, comes from the success of rendering the ecosystem measurable and comparable with other ecosystems, not from nature itself" (2011: 9). He is asserting that value resides in the act of measurement itself. Yet he sees this act wrapped up in all sorts of violence and alienation, as of course it is. I would add, then, that the labor of exclusion is itself a source of value, to the extent that exclusion liberates material land to bear social abstractions, something that it cannot do if it exists primarily in the imagination as a use-value rather than an exchange-value. By labor of exclusion I mean both the physical labor and intellectual labor bound up in the process of wetland regulation. ACE field staff are usually required to make an onsite determination of wetland status and decide whether or not the site is a *jurisdictional* wetland. This labor includes the site mapping, soil sampling, vegetative surveys, report writing, and the tracing of water flow

patterns. At the end of the day this labor either inscribes a particular site within a free-market regulatory framework or it does not. If the result of this labor is a jurisdictional wetland determination, then the site is now enrolled in a market for wetland credits, and its owners must pay in order to realize their land use vision. This labor transforms a discrete parcel of land into a commensurable and exchangeable product. There is additional intellectual labor that takes place during the review and vetting of permit applications. Staff must read and score thousands of applications from potential wetland developers, determining how many wetland credits are required to adequately mitigate the site. These labors of exclusion produce more than a jurisdictional wetland; they produce a group of people for whom wetland mitigation credits become a desirable use-value, something necessary for the group's own realization of value (in this case conceived of as the development of Viet Village). Ultimately, for wetland credits to bear value, exclusion must take place. Otherwise the credits are not tradable as value; rather, they are produced as not-values.

My argument is not that environmental governance is solely designed to suit the needs of the accumulation of capital, or that the preservation of wetlands is in itself a bad thing – on the contrary, it is quite necessary. However, we cannot decouple the goals of governance from the material social practices that develop through and are enabled by environmental governance. In the case of wetland banking, we can critique the ecologically bankrupt claim that replacing wetland in one place with an industrially produced wetland somewhere altogether different is in any way comparable. In order to believe this we need also to assume that ecosystems are not a fully integrated and interpenetrating complex of flows, a system constantly being reproduced in new ways. In the case of Viet Village, we can and should critique the social inequities and injustices that result from the relations of power and processes of capital accumulation. The

CDC has been excluded from space. In order to realize their own possibility-spaces, they are required to pay a sum of money to a corporation (Chevron) that is intimately wrapped up in processes of wetland degradation on an entirely different order of magnitude. Chevron, through its ability to capitalize on new regulatory markets, has transformed a regulatory liability into an avenue for profit. This profit stems from a process of dispossession, to the extent that it is totally non-productive in itself, and is rather a form of enclosure, appropriation through "force, fraud, predation, and…looting" (Harvey 2006 [1982]: xvi). Without the supporting force of the state, in this case represented by the Army Corps of Engineers, there would be no market for mitigation credits and no customers. The CDC is excluded from the production of nature to the extent that nature is produced for them by material and discursive processes of power and capital circulation, and to the extent that, in order to produce their own nature, the CDC is coerced into exchanging value for wetland mitigation credits. Robertson (2011) tells us that nature is made to bear value to the extent that we consent to the social abstractions that are produced. It is clear through our analysis of the social relations wrapped up in this production that consent is not necessary, but is instead a coercive process, so long as the state regulatory apparatus enables the appropriation of nature as "means of reproduction of capital versus means of reproduction of civil society and human and other species of life" (O'Connor 1998: 12). O'Connor argues that environmental governance is necessary, but that it must work toward the reproduction of the means of life rather than the reproduction of capital. In other words, governance should be concerned with the use-value of socio-natures rather than envisioning these socio-natures as exchange-value. We must consider governance in this light, as a struggle to determine 'what is and is not value.' As Smith writes, "under capitalism, this is a judgment made in the market, one which presents itself as a natural result. Socialism is the struggle to judge necessity according

not to the market and its logic but to human need, according not to exchange-value and profit, but to use-value" (2009 [1984]: 89).

Assigning exchange-value to ecosystem processes is ultimately a victory for the logic of capital. It ensures that a certain class of people has greater rights of access and control over the conditions of production, and hence the conditions of life, than others. It ensures that some people's vision of development is not only less possible, but it also violently erases these visions from the material landscape. Wetland banking, and ecosystem valuation generally, is a dangerous expansion of capital's influence in decisions over what is value and what is not value.

Conclusion

The advent of a market for ecosystem services has been a purposeful and calculated move to shift the enforcement of governance strategies away from pure regulation and toward the coercive and rewarding power of the market. Far from the fetishization of wetland banks as preserves of the natural or the non-human we find that wetlands large and small are in fact managed landscapes. This practice of market-based environmental regulation appeals to a hegemonic discursive frame of market efficiency, resource scarcity, and the financialization of nature (ecosystem services). The central question here is for whom are wetlands managed and with what imaginary. If, as this chapter has sought to demonstrate, someone must be excluded in order for wetland banks to bear value, then someone else must benefit from such regulation. Is this a case in which the "public interest" wins out over the rights of private property, as all the regulatory guidance documents like to suggest? Or do appeals to the public interest obscure the fact that there are real winners and losers in this form of market regulation?

In the next chapter I discuss the role of the Army Corps of Engineers as a management agent. The Corps' choice of tools or technologies – in this case maps, acres, ecosystem functions, statistics, and soil surveys – informs and is informed by a particular conception of the object of measurement. Wetlands are literally carved out of the flow of space by the GPS unit and the soil sample. They are made to carry (and circulate) value. This is only possible through the technologies of governance. And what do these technologies of governance, in turn, say about the ideologies that employ and are employed by wetland banking? Finally, which contradictions within the capitalist production of nature are sutured through this process? How do wetland banks help stabilize a particular regime of accumulation?

3: Governed Spaces

> Space is at once result and cause, product and producer; it is also a *stake*, the locus of projects and actions deployed as part of specific strategies, and hence also the object of *wagers* on the future – wagers which are articulated, if never completely.
> -Henri Lefebvre, *The Production of Space* (1991 [1974]: 142)

> The focus on the micropolitics of bureaucracy… leaves wanting a theory of power, and especially a theory of the relations of power that create the *structural position* of bureaucratic agencies – *and their employees* – in the political economy…
> -Don Mitchell, *They Saved the Crops* (2012: 257)

Introduction

In the fall of 2010, Lauren Butz received a letter from Senator Mary Landrieu. The letter offered the Senator's assistance in attempting to secure federal appropriations for the Viet Village Urban Farm Project and regretted that funding was not included in the previous round of appropriations. The Senator wrote: "I am disappointed that the Committee did not include funding for your project this year. Because of my continued support [for] your project, I would be happy to submit your request for consideration when Congress develops appropriations legislation for Fiscal Year 2012… Additionally, my staff is willing and able to assist you in developing this proposal or seeking Federal funding through other avenues, like one of the many competitive grant programs which may be relevant to this project" (Landrieu 2010).

Congressman Anh "Joseph" Cao went a step further and actually solicited Robert Tewis of the Army Corps of Engineers. Cao wrote: "After meeting with MQVN-CDC, I am looking forward to supporting them wholeheartedly in their endeavor. I appreciate any consideration to this request for permitting, and I know that the funding requested will be a positive investment in the future of the 2nd congressional district of Louisiana" (Cao 2009). Ultimately the CDC never received money from Congress (they did receive roughly $750,000 from private foundations and non-profits).

There is nothing extraordinary about this practice of recruiting elected representatives to intervene in the bureaucratic-regulatory process. In this instance the effort went unrewarded, though it is impressive that such a small-scale neighborhood organization could entice a Congressman and Senator to write letters and submit appropriation requests on their behalf (both Landrieu and Cao ultimately submitted several requests for funding over the course of a couple years). These exchanges should alert us to two things: first, the state – and especially a federalist state – does not operate as a unity. Rather, multiple branches, levels, agencies, and individuals interact in often confusing and contradictory ways, sometimes struggling over turf or jurisdiction or simply flexing political muscle, sometimes acting in intentionally obtuse and obfuscating ways. These are, as Don Mitchell calls them, the micropolitics of bureaucracy. And second, the currents of state power do not necessarily align directly with the market or the process of capital accumulation. Rather, state power is struggled over and pulled here and there by the vicissitudes of social relations not necessarily defined by class interest. For example, nationalism, regionalism, or any number of localisms (acutely on display in a federalist system of representation) may sometimes serve and sometimes complicate the production of a landscape designed for capital accumulation.

This is not to suggest that either Senator Landrieu's or Congressman Cao's interventions were attempts to buck the structure and purpose of wetland mitigation regulation, regulation specifically designed to smooth contradictions and tensions between nature, the state, and capital. Rather, their interventions display one avenue along which relatively powerless actors at the local level can expand their power by jumping scales. The complexity of the micropolitics of state bureaucracy encourages us to accept a theory that relies on the cult of the individual to trace the contours of power. The danger here is that we might naturalize those very contours of

power rather than questioning their foundations. That is why Mitchell encourages us to consider a broader theory of state power and its relation to the forces of production. Lefebvre offers a vivid, if cryptic, hydrodynamic metaphor for this interplay of forces in the production of space:

> Great movements, vast rhythms, immense waves – these all collide and 'interfere' with one another; lesser movements, on the other hand, interpenetrate. If we were to follow this model, we would say that any social locus could only be properly understood by taking two kinds of determinations into account: on the one hand, that locus would be mobilized, carried forward and sometimes smashed apart by major tendencies, those tendencies which 'interfere' with one another; on the other hand, it would be penetrated by, and shot through with, the weaker tendencies characteristic of networks and pathways (1991 [1974]: 87).

In this chapter I will attempt to demonstrate some of the concealed purposes of wetland banking, and from this example make some statements about the role of government in a particular moment of governance, a moment that not only defines but actually produces a particular kind of space within our present socio-natural or enviro-technical system. I will begin by considering some of the essential technologies of governance or statecraft that produce legible spaces in which governance can occur. As both Neil Smith (1984) and Henri Lefebvre (1991[1974]) detail in their work on the production of space, the application of statecraft is a movement from absolute space to relative or abstract space. Or as James Scott (1998) argues, statecraft not only makes space legible to the state, it produces state spaces of a particular design. Of course, the actual production of space is not possible through statecraft alone. Certain ideologies and knowledge-powers must be set in motion to direct the application of statecraft. Such assemblages make possible particular social worlds (landscapes of production and reproduction). Again we must ask: what kind of world, and for whom?

My argument is that wetland banking, representing a particular form of ecological economics or ecosystem valuation (another example would be CO_2 cap and trade), operates as a *strategy* of governance for overcoming apparent contradictions in the capitalist mode of

production and an incoherent supporting ideology. Drawing on a regulationist framework (see Bridge 2000; Bridge and Jonas 2002), we might say that emerging markets in ecosystem valuation are attempts to stabilize a particular regime of capital accumulation in a world of both social and ecological limits. Wetland banking operates as a mode of market-oriented social regulation that serves to overcome, or at least suture temporarily, the contradictions in capital's continued degradation of the socio-ecological conditions of production. Such a theoretical formulation locates the historic contradictions of capital accumulation in the "metabolism of commodity production," and how the transformation of nature can "undermine the bio-physical and socio-political conditions necessary to sustain future profitability" (Bridge 2000: 244). Bridge is speaking directly of primary extractive industries such as mining, forestry, and agriculture in which the byproducts of the production process are often seen as sources of pollution or environmental ills, and the existence of raw material is subject to physical limitations. Wetland banking is certainly not an extractive industry in this sense, but it does operate to stabilize a perpetual process of uneven development in very similar ways, at least for a time.

In the following section I will discuss the various technologies of governance, or the tools and optics through which wetlands are measured and described, that imbricate with the institutional arrangements that ultimately stabilize uneven development, at least in the context of wetland degradation and restoration. Such a mode of social regulation is, of course, only necessary after wetlands have been valued as necessary components of a functional eco-social system. In short, after wetlands were discursively produced as environmental values, their continued destruction required a form of regulation that appeared to offset the degradation of the conditions of a healthy eco-social system.

Statecraft: Finding the Right Prospect

In his book on the production of landscape in Bracero-era California, Don Mitchell offers us this dual definition of prospect:

> "Prospect" means, among other things "an extensive or commanding view of the landscape," as well as "that which is visible from a place or a point of view, a scene, a landscape." The prospect is both the view of the landscape and the landscape itself. And it is both the act of looking out on the future, and the future itself. And *to* prospect is to find the possibility of wealth in the landscape (2012: 369).

Much of the history of regulatory governance in this country is, in fact, the process of finding the right prospect from which to envision (and then create) a particular future. As the history of wetlands demonstrates, the federal government has found it necessary to regulate land, water, and air with increasing enthusiasm. The state's engagement with land and water conservation is concomitant with the rise of an ideology of scarcity, with the closing of the frontier, and a concern with the efficient use of resources and a rational use of space. For James Scott, this is the historical moment when a state devises tools of measurement and ordering that seek to make a territory legible for administrators:

> As long as common property was abundant and had essentially no fiscal value, the illegibility of its tenure was no problem. But the moment it became scarce (when "nature" became "natural resources"), it became the subject of property rights in law, whether of the state or of the citizens. The history of property in this sense has meant the inexorable incorporation of what were once thought of as free gifts of nature… into a property regime… The cadastral map added documentary intelligence to state power and thus provided the basis for the synoptic view of the state and a supralocal market in land (1998: 39).

Wetlands underwent this transformation somewhat later in the century than other free gifts of nature such as dry land and forests. In order to develop this prospect certain technologies of governance were established to classify and regularize wetlands. Ironically, as ecologists

came to know wetlands in ever more complex ways, they also provided the tools for economists to simplify them down to the most relevant identifiers: extent and dominant vegetation. For the purposes of wetland banking, the watershed is also relevant, but less important than the first two. Recall that Paradis Mitigation Bank circulates wetland credits identified in the following three ways: the bank has 7100 acres worth of credit to dispense; the credits are available for bottomland hardwood and/or cypress swamp mitigation; and credit is available within the Barataria Basin (watershed). We've already seen how the watershed classification is flexible (Viet Village is not within the same watershed). Thus, a wetland is measured and qualified based primarily upon areal extent (acres) and vegetation, not upon location or nature of water flow or soil type. The vegetation determination stands in as an indicator for water regime, soil type, climate, fauna, and all the other components that make up a complex and interdependent ecosystem. Let's consider the Corps of Engineers' process for making a wetland determination, in order to reveal some of the technologies and assumptions employed in the simplification process.

According to the Corps of Engineers Wetland Delineation Manual (1987: 9), a site is classified as wetland if at least one positive indicator from each of the following three categories is present:

> *Diagnostic environmental characteristics*. Wetlands have the following general diagnostic environmental characteristics:
>
> (1) *Vegetation.* The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in *a* above. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptations(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Indicators of vegetation associated with wetlands are listed in paragraph 35.

(2) *Soil.* Soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions. Indicators of soils developed under reducing conditions are listed in paragraphs 44 and 45.

(3) *Hydrology*. The area is inundated either permanently or periodically at mean water depths [less than or equal to] 6.6 ft, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation. Indicators of hydrologic conditions that occur in wetlands are listed in paragraph 49.

Let's consider vegetation in more depth, since it is the indicator that comes to the fore in the final commercial classification of wetlands for the purposes of circulating credit. According to the manual, "Several indicators may be used to determine whether hydrophytic vegetation is present on site. However, the presence of a single individual of a hydrophytic species does not mean that hydrophytic vegetation is present. The strongest case for the presence of hydrophytic vegetation can be made when several indicators, such as those in the following list, are present. However, any one of the following is indicative that hydrophytic vegetation is present…" (1987: 17). The manual lists six possible indicators in order of descending reliability (the list is summarized below):

(1) More than 50 percent of the dominant species are OBL [obligate wetland plants], FACW [facultative wetland plants], or FAC [facultative plants] on lists of plant species that occur in wetlands.[1]
(2) Visual observation of plant species growing in areas of prolonged inundation and/or soil saturation.
(3) Morphological adaptations.
(4) Technical literature. The technical literature may provide a strong indication that plant species comprising the prevalent vegetation are commonly found in areas where soils are periodically saturated for long periods. Sources of available literature include:
   a. Taxonomic references.
   b. Botanical journals.
   c. Technical reports.
   d. Technical workshops, conferences, and symposia.

[1] OBL, FACW, and FAC represent probability ranges that these plants will occur in a wetland environment.

e. Wetland plant database.
(5) Physiological adaptations.
(6) Reproductive adaptations.

While this list does not yet reveal particular technologies, it does begin to describe the simplification process. A wetland determination is predicated upon a significant amount of pre-classification work that has been recorded and compiled in databases, journals, and reports. In fact, a wetland determination can sometimes be made solely on the basis of pre-classification, at which point a site inspection is not even deemed necessary. Only one of the indicators listed above is reliant on an actual visual site inspection. Yet the word *visual* is problematic here. With the proliferation of technologies for *seeing* landscapes, does visual even mean physically present? From what prospect is a possible wetland site visualized? And does the existence of all those databases full of plant classifications mean that the site was at least once visualized in person? Not necessarily. Let's consider the actual data sources used to *visualize* the presence of indicators. The Manual directs wetland inspectors to obtain the following information, when available:

(1) USGS quadrangle maps.
(2) National Wetlands Inventory products.
    a. Wetland maps.
    b. Plant database.
(3) Soil surveys.
(4) Stream and tidal gage data.
(5) Environmental impact assessments, environmental impact statements, general design memoranda, and other similar publications.
(6) Documents and maps from State, county, or local governments.
(7) Remote sensing.
(8) Local individuals and experts.
(9) USGS land use and land cover maps.
(10) Applicant's survey plans and engineering designs.

With the above data sources a Corps wetland technician can often make a wetland determination without conducting a site visit. The actual technologies required for such a

determination include aircraft, cameras, LIDAR, chemical sampling, map projections, GIS, property surveys, statistical sampling, and plant classification tables. In gathering this data, the Corps of Engineers is heavily reliant on the US Geological Survey, not to mention the nested administrations of state, county, and local governments to provide pre-recorded landscape data. Within this framework of classification, the *prospect* becomes the digital photo shot from the wing of an airplane, or the GIS interface within which a soil layer and a water body layer are combined. And the actual determination, the act of classification, is reduced to a statistical algorithm drawn from a database of probable cases based upon certain geographic criteria. Increasingly what matters is not whether a site is a wetland, but whether it is *statistically* likely to be a wetland. And as Scott (1998) emphasizes, the act of statistical categorization not only makes a complex landscape legible, it remakes the landscape itself. A space on the map within a certain climatic zone, with identifiable water bodies and a certain soil type, and with at least 50% of the dominant vegetation occurring with similar likelihood in wetland and non-wetland environments, becomes a wetland and is mobilized as such within a particular regulatory structure. This process for making a wetland determination describes the codification of a highly technical and expert knowledge. The appeal of maps, satellite imagery, and statistical databases underline the necessity for a comprehensive system of classification, one that can scale fluidly from individual wetland determinations to a national extent. As much as possible, a single determination must be made using the same criteria as every other determination. This includes using the same data sources and the same statistical thresholds. Furthermore, the less frequently actual technicians must be dispatched to the field the more physical and temporal control the institutional structure of the Corps exerts over the determination process. The faster a technician or project manager can make a determination and shepherd the project along its regulatory

process the better. As Robert Tewis, a project manager for the Corps, described, the longer the Viet Village project remained unresolved, the more pressure he received from his bosses to find a solution.

The gathering, processing, and application of data from technologically advanced sources such as GIS, aircraft and satellite imaging, statistical inventories, and engineering plans relegates the determination of wetlands to experts and those who can afford to hire experts. This makes it difficult, if not impossible, for the common landowner to challenge a wetland determination itself. The CDC, for example, never challenged the fact that the Viet Village parcel should be considered a wetland; rather, they challenged the regulatory burden based upon the merits of the proposed project to the general welfare of the community. And Gardner (2011), for example, describes numerous legal challenges to Section 404 of the Clean Water Act based upon the question of whether the state has the right to regulate certain types of wetlands. But once granted that right, the Corps' process of determination is relatively unassailable. There is no room in a national regulatory strategy for local distinctions and definitions of landscape functions, no space to debate the relative merit of locally adaptive use-values or livelihood strategies. For a nationally comprehensive regulatory regime to function, a suitably broad prospect must be constructed from the expert knowledges that come from panoptic technologies of governance.

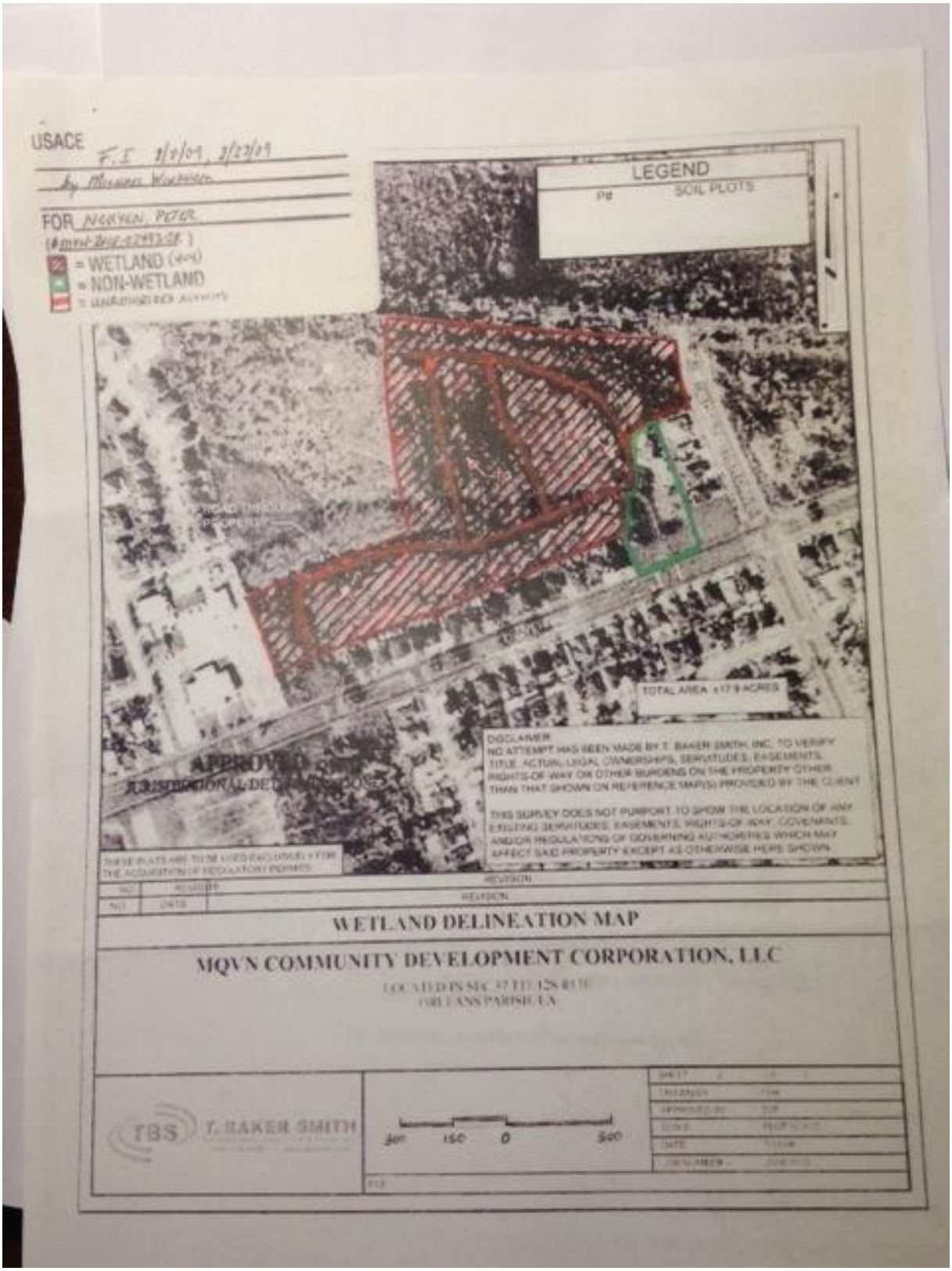

Figure 8: Photo of Corps' Wetland Delineation Map for Viet Village.

There is a final simplification or reduction that occurs in the case of wetland banking. Acres are transformed into dollars through a formula known as a mitigation ratio. This ratio must be determined for both the wetland bank and the site that will be mitigated via the purchase of credits. In the case of the bank, the Corps assesses the change in environmental status of the bank site (i.e., the degree to which the bank has restored the site), and determines a credit to acre ratio based upon the quality of the change (more credits per acre if the site was significantly degraded). On the buyer's side, the Corp also assesses the level of degradation of the proposed build site. A more degraded site requires fewer credits per acre to mitigate (Gardner 2011). According to Daniel and Tuan (personal communication 2012), the Corp initially assessed Viet Village at a 3 to 1 ratio, which meant that they would need to purchase 3 credits per acre. Paradis Mitigation Bank sells a credit for $20,000 and the site is roughly 18 acres. At this ratio, the CDC would have had to spend $1,080,000 on mitigation credits. The CDC successfully appealed the ratio determination, arguing that the site had been degraded by illegal dumping and benzene contamination. According to Daniel, the Corps decided to revise their ratio to a 1 to 1 determination, which brought the cost of mitigation down to $360,000. When asked about this ratio determination, Robert Tewis told me that he worked hard to get the lowest possible rate for the CDC. Tewis reported that he was "trying to get this thing settled. It was congressional, it was the governor's office, it was everything… The colonel's office was involved, my division chief, my branch chief was involved. I got a lot of heat at the time" (personal communication 2013). Evidently the political pressure that the CDC was able to enlist was effective. Power bent the regulations as far as they would go, but Tewis noted that there is no exception for a non-profit religious organization. Ultimately they were required to mitigate and there was no way the Corp wanted to set a precedent by releasing them of their regulatory obligation.

It is important to note that the Corps does not set the price of a wetland credit; the price is set by the market. According to *Ecosystem Marketplace, "*Wetland credit prices range anywhere from $3,000 to $600,000. The variability in the market value of wetland section 404 credits reflects differences in the availability and price of land suitable for bank development and the cost to create an acre of wetland compensation within a given region" (US Wetland Banking, accessed 2/11/13). So while the Corps determines the ratio that transforms acres into credits, the market determines the ratio through which a credit is transformed into money. Tewis describes it bluntly:

> We have nothing to do with the cost of mitigation. Costs are set by mitigation banks themselves. It's a capitalistic endeavor and the federal government doesn't get involved. People that set up mitigation banks do it for profit. Unless they can make a profit at it, you know, they do one and they're done. It's driven by market value.

This transformation describes a process of categorization, simplification, and abstraction, followed by a process of translation from one code of value to another. And according to Lefebvre,

> Things and products that are measured, that is to say reduced to the common measure of money, do not speak the truth about themselves. On the contrary, it is in their nature as things and products to conceal the truth. Not that they do not speak at all: they use their own language, the langue of things and products, to tout the satisfaction they can supply and the needs they can meet; they use it too to lie, to dissimulate not only the amount of social labour that they contain, not only the productive labour that they embody, but also the social relationships of exploitation and domination on which they are founded (1974[1991]: 80).

But why should wetland banks conceal the truth about their production? Aren't they, after all, a form of progressive environmental regulation that seeks to conserve valuable ecosystems? There must be some reason, some necessity for such obfuscation. What lies at the

heart of the translation between regulatory credit and market dollars? Or more broadly, what ideology and strategy of governance have these technologies of statecraft made possible?

Wetland Banking as Socio-ecological Regulation

While ecologists and botanists were busy classifying ecosystem processes, vegetative regimes, and soil horizons, social scientists have been busy classifying social periods. We speak of modernity, high modernism, second modernity, or postmodernity, also classical liberalism, neoliberalism, or even post-neoliberalism. Powerful arguments can be made for the aptness of any of these appellations. However, the root concern of this project of naming is to identify particular social relations or sets of relations that interact in particular ways, for a time and in a place. Rather than classify wetland banking as a strategy of neoliberalism or second modernity, I am interested in the reason for its existence. What set of social relations does it make possible? Which contradictions does it regulate so as to stabilize a certain regime of accumulation? Wetland banks suture a social ideology of progress, technological management, growth and efficiency to an ideology of limits, lifeboats, and managed risk. On its own, a wetland bank makes no sense. It is only by observing the dialectical relationship between wetland banking and land development that we can we understand the work that such a regulatory regime does. It offers populism and efficiency, development and restraint, rational management and managed conservation. In short, it allows uneven development to continue in a world of eco-social limits, a world in which we recognize capital's tendency to degrade the conditions of production (O'Connor 1988). The promise of wetland banking is to continually restore the conditions of production and reproduction, to reproduce the ecological values necessary for the maintenance of

functional landscapes, all while allowing relatively uninhibited development to go on in the most efficient and rational way possible.

According to the 1995 *Federal Register Guidance for the Establishment, Use and Operation of Mitigation Banks*, mitigation banking is defined as "The restoration, creation, enhancement, and (in exceptional circumstances) preservation of wetlands and/or other aquatic resources, expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources" (Brumbaugh 1995). Statements on the advantages of wetland banking routinely include phrases such as: measurable, ecologically superior wetlands, economy of scale, efficiency, and watershed-based wetland planning (Brumbaugh 1995). And yet wetland banks are in some ways the exact opposite of large-scale state-run development or social engineering projects. They are decentralized, market-driven, public-private partnerships. As Tewis noted, the government merely lays the regulatory foundation for the private market. The government establishes the currency but lets the market set the price. The Corps advises private entities on the number of credits they need, or on how to construct a wetland, but they don't build the projects themselves. While there are historical elements of high modernism and the panoptic eye embodied in the wetland maps and classification systems, in the currency of ecosystem functions, and the Corp's military culture and organizational structure, there is also something else at work in wetland banking, some kind of ideological mixing. The Corps' odd mélange of strategic objectives, including national security, economic vitality, and environmental sustainability, speaks to a hybrid ideology and regulatory regime.

In *World Risk Society*, Ulrich Beck lays out an ideological schema in which global risk has subsumed the progress-oriented, controllable, and linear industrial modernization of modernity. Risk "is the modern approach to foresee and control the future consequences of

human action… It is an (institutionalized) attempt, a cognitive map, to colonize the future (1999: 3). This new order is international and local; the technical decision-making process is still based on calculation and measurement, but a new sort of statistical calculus that measures the unknown. At the root of risk is a concern for the uncontrollability of social life (including nature). Beck's risk society is preoccupied with securing growth within a world of possible limits and ungovernable spaces. Ultimately, world risk society's "axial principle, its challenges, are dangers produced by civilization which cannot be socially delimited in either space or time" (1999: 19).

While there is much to dispute in this rather sweeping formulation, there are also elements of this ideology at work in wetland banking. In its *Mitigation Banking Factsheet,* the EPA reports that one of the primary benefits of wetland banking is to "reduce uncertainty over whether the compensatory mitigation will be successful," to increase efficiency, and to "assemble and apply extensive financial resources, planning, and scientific expertise" (EPA 2009). The 'no net loss' policy is fundamentally a strategy to manage continued development within a globally competitive space while acknowledging material and discursive limits to the exploitation and remaking of particular spaces. The market-oriented approach to environmental governance is simultaneously a project of the nation-state and a post-state system of land management. Wetland banking mobilizes the discourse of national values and finite territorial attributes while superseding the state as a governing apparatus. In short, wetland banking is able to appeal to an ideology of market-based risk management in order to overcome local barriers to production and capital accumulation.

As we have seen with the wetland determination and valuation process, the success of wetland banking is predicated on exhaustive categorization, sampling, and mapping of space. In

order to circulate something as abstract as ecosystem values, those values must be highly quantified and delimited. We must be made to believe in their legibility. Lefebvre (1974[1991]: 75) suggests that repetitious spaces have vanquished unique spaces through the application of gestures, machines, instruments, and measurements designed to duplicate. He then asks, "Are these spaces interchangeable because they are homologous? Or are they homogenous so that they can be exchanged, bought and sold, with the only differences between them being those assessable in money – i.e. quantifiable – terms (as volumes, distances, etc.)?" This repetitious production of space (homogenized through the application of wetland credits) expresses a confidence in the penetration of the mysteries of ecosystemic relations, the ultimate knowability and replication of nature, even as it acknowledges the necessity of preserving certain valued relationships (e.g., wildlife habitat, water purification, storm buffers). Furthermore, the no net loss policy establishes a national spatial container while recognizing the watershed as a legitimate socio-economic scale. One of the supposed victories of wetland banking is the organization of a national regulatory market while simultaneously prioritizing watershed-level management and exchange. By highlighting these dual scales of governance – the nation and the watershed – wetland banking works to depoliticize the production of scale through governance. As Bridge and Perreault describe, environmental managers often "look to natural systems – watersheds, river catchments – for guidance on the geographical scale of governance regimes" (2009: 479). Simultaneously, the use of the national scale as a regulatory baseline in wetland banking serves to reprioritize the nation-state as the proper site of environmental governance, contrary to a neoliberal agenda that seeks to construct new global scales of regulation. Rather than "hollowing out the nation state" (Bridge and Perreault 2009: 486), wetland banking appeals

to a national territory that continues to play an important role in mediating between the fluid movements of global finance and the fixed attributes of material space.

Finally, wetland banking is a governance strategy or mode of regulation that attempts to resolve the contradiction between accumulation and the material and spatial limits to production. O'Connor (1988) describes this contradiction as a crisis in underproduction. Bridge summarizes the argument thus, "Since ecological processes are not actively produced as commodities… these ecological processes are effectively underpriced by the market. Over time, underpricing and relentless externalizing of environmental costs cause environmental goods and services to become increasingly scarce…" (2000: 239). Ecological economists have attempted to remedy this situation by pricing environmental goods into models of production. In short, wetland banking is an ambitious attempt to regulate the underpricing of environmental goods and services by requiring their reproduction within the development process. In the final section of this chapter I'll consider what exactly it is the wetland banking accomplishes through this mode of regulation. In other words, what does the resolution of the contradiction look like?

The Practical and Spatial Logic of Wetland Banking

Wetland banking produces and is produced by a particular set of social relations as well as a particular kind of space. Harvey describes *spatial integration* as a key component to the free circulation of capital: "Spatial integration – the linking of commodity production in different locations through exchange – is necessary if value is to become the social form of abstract labour" (1982[2006]: 375). And Neil Smith proposes that spatial relations are an attribute of use-values and that spatial integration is a process of relativization:

> We know already from Marx that the historical development of capitalism entails the progressive universalization of value as the form of abstract labor. This

> involves not just the production of geographical space through the development of transportation networks, but the progressive integration and transformation of absolute spaces into relative space; absolute spaces are the raw material for the production of relative space (1984: 113).

Rather than speaking of relative space, Lefebvre suggests that, "Capitalism and neocapitalism have produced abstract space, which includes the 'world of commodities', its 'logic' and its worldwide strategies, as well as the power of money and that of the political state" (1974[1991]: 53). But he also posits a space beyond abstract or relative space, one produced through the contradictions inherent in capital production:

> Thus, despite – or rather because of – its negativity, abstract space carries within itself the seeds of a new kind of space. I shall call that new space 'differential space', because, inasmuch as abstract space tends toward homogeneity, towards the elimination of existing differences or peculiarities, a new space cannot be born (produced) unless it accentuates differences. It will also restore unity to what abstract space breaks up – to the functions, elements and moments of social practice (52).

The trick of wetland banking, then, is its attempt to simultaneously produce spatial integration on the one hand, and overcome the contradictions of abstraction on the other. Ecosystem functions are at once fetishized by the money form and differentiated according to use value (including spatial attributes). But this is a tenuous alchemy at best. Let's consider the functions of wetland banking in turn.

The first thing we can say is that wetland banking is a form of risk management in an uncertain environmental regime. This is true materially and politically. There is an undeniable risk associated with development – from (bio)physical failure or disintegration, or from social outcry at the mis-valuation of public goods. The very term 'ecosystem functions' is an admission by the regulatory apparatus that certain biological operations such as storm water management, water filtration, and wildlife habitat, whether nonhuman or manufactured, are

critical socio-ecological relations to maintain, and their possible dissolution suggests certain limits to the creative destruction of the biosphere. Wetland banking, through spatial integration, offers a universal valuation of these ecosystem functions and a (at least theoretical) safety net or floor for their maintenance in the national no net loss policy. It creates a system of exchange that enables both conservation and continued expansion side by side. In other words, it represents a strategy of governance that recognizes the imperative of a relatively unlimited expansion in the means of production in any one place, while understanding that places can be traded like insurance policies against the ills of public opinion and the absolute degradation of the underlying socio-ecological system. Moreover, it enrolls conservation in a system of uneven development.

In his concluding statements to *Uneven Development*, Smith writes:

> As capital stares into the future and runs from the past, it is tempted continually to embrace mobility or fixity as alternative versions of the spatial fix. Insofar as neither of these can work, yet each respectively brings a tendency toward equalization and differentiation of the geographic landscape, the result is an uneven development of capitalism which itself varies between the more stable unevenness of the global scale to the more fluid unevenness of the urban (1984[2008]: 202).

Just as private property and the ground-rent system provide for the equalization of urban space, wetland banks and wetland credits both equalize and provide the means for a differentiation of conserved spaces.[2] By simultaneously protecting wetland spaces and setting a price for their development, money stands in for absolute regulation; moral decisions about preservation and development are abrogated. Money (translated through credits) as a universal measurement becomes the moral cost for development. If you have money with which to

[2] I use 'conserved spaces' here, but they can also be preserved, reconstructed, or redeveloped spaces – wetland banks can be manufactured from degraded resources, and in fact, this is the preferred method according to the Corps.

purchase credits, then you have fulfilled your moral duty to society through the transference of ecosystem functions (and their regulation) from one location to another. Touted as efficient and rational, markets in ecosystem functions facilitate the movement of capital across the landscape, flattening the regulatory environment and producing not only uneven development, but uneven ecological regimes as well. For example, wetland banks facilitate the transfer of wetlands from high-value urban areas to low-value rural areas, physically remaking watersheds and hydraulic systems in the process. Here, however, we can't simply say that 'pollution follows the poor,' because conservation appears in many cases as a social good. A wetland bank is not your usual industrial externality; in fact, it's the opposite – a spatial accounting of externalities. While we can't necessarily say that this form of environmental regulation shifts the *negative* impacts of development to lower-value areas, we can say that it limits certain *positive* developments in high-value areas. Viet Village is a case in point. Furthermore, while wetland markets flatten the regulatory environment for capital, they accentuate the map's topography. Low-lying coastal areas – like much of southern Louisiana – become prime markets in wetland credits. A policy purportedly for the preservation of critical coastal wetland merely selects for large-scale and well-financed development, putting property further out of reach for many.

Wetland banks also display a tension, or contradiction, between radical simplification and the acknowledgement of complexity, diversity, and intricacy. Built upon the scientific advances of ecology over the last half century, ecosystem markets attempt to account for a diverse set of 'ecosystem functions,' which represents a much broader set of values than are usually acknowledged under the category of 'natural resources.' Recognizing the intangibles that are not readily exploitable, ecosystem markets create a system of exchange capable of mobilizing a greater frame of vision. Ultimately, however, what is accomplished is simply a greater feat of

accounting and measuring. Wetland banks make wetlands legible to capital. The intangibles, too, are homogenized down to a universal system of value. Ecosystem markets, through ever more complex schemes of measurement and knowledge of the world, expand the panoptic gaze of capital. For Scott, this panoptic gaze was a product and tool of the state, though capitalist markets could likewise produce the same homogenizing and abstracting tendencies:

> [L]arge-scale capitalism is just as much an agency of homogenization, uniformity, grids, and heroic simplification as the state is, with the difference being that, for capitalists, simplification must pay. A market necessarily reduces quality to quantity via the price mechanism and promotes standardization; in markets, money talks, not people. Today, global capitalism is perhaps the most powerful force for homogenization, whereas the state may in some instances be the defender of local difference and variety (1998: 8).

But where exactly does the market begin and the state end? Markets have always morphed to accommodate regulation. Regulation itself sometimes acts as a barrier to the flow of capital, and sometimes an enabler. Wetland banking is an example of a more fully integrated regime of regulation, one in which the market becomes a technology of governance, a decentralized enforcer of a hybrid ideology in which limitless growth is available to those who can pay or borrow, and everyone else can take comfort in the fact that the state offers equality of opportunity within the free market. As Robert Tewis said of Mary Queen of Vietnam CDC, when asked about Viet Village: "Well, they *chose* not to mitigate." If consumer choice is sacrosanct and ecological mitigation is simply a market exchange, then an inability to mitigate can be reframed as a failure of the individual to exercise their right to consume. The fact that the CDC didn't have enough money to purchase credits is immaterial in the eyes of the state. It is the abstract equality of opportunity that is the purported greatest good. The state, by absorbing the market as a technology of governance, combines the centralizing, homogenizing, and unifying system of measurement and categorization of wetlands with the decentralized

blamelessness of the market. As Tewis noted on several occasions, "[The Corps] has nothing to do with the cost of mitigation." Technically, the Corps has nothing to do with the price of a wetland credit. But the line between credits and market price is a blurry one, and while the state benefits from the apparent resolution of tensions between the growth imperative and socio-ecological limits, the market itself also benefits from this expansion of its purview.

In this case, regulation achieves for capital what capital itself cannot do. Like laws that sanctify and protect private property, wetland mitigation establishes a new layer of ground-rents for capital to circulate through. Without regulation there would be no market and no exchange, no homogeneity of wetland spaces. For some corporations, wetland regulation actually creates a spatial fix for un-valued property. Alice Kenny reports on Chevron's decision to build Paradis Mitigation Bank:

> For decades, Chevron's Paradis wetlands offered more riches for its corporate owners than just diverse wildlife. Oil companies drilled there for 60 years, prospering off oil swirling below the surface. But the oil productivity began declining in the 1980s…
>
> This pushed the new corporation to decide what to do with its former cash cow. They considered a variety of options, Carmichael says, from building homes and businesses to selling the land. But the property's elevation averaged six feet below sea level; percolation tests revealed that it was too weak to support structures. The land, says Carmichael "was essentially undevelopable…"
>
> By turning the land into a mitigation bank, Chevron has, in a sense, struck oil once again. Development pressures in this region along Highway 90, the main thoroughfare to New Orleans, are acute and accelerating… As the city's suburban reach expands, developers are gobbling up available properties, including wetlands. With the supply of mitigation credits in this watershed sparse and the demand for them high, the corporation plans to demand a hefty price for its credits (Kenny 2006).

For some wetland bank managers it's about exploiting a new industry in ecosystem services, but for others like Chevron, it's an opportunity to avoid the devaluation of fixed capital. Kenny concludes that many of the corporations investing in mitigation banking, at least in the

Gulf region, are oil and gas companies with extra land that has a history of oil exploration. Instead of taking a loss on the fixed capital (in the form of land ownership), wetland regulation allows these companies to repurpose their spatial investments through the manufactured demand for wetland credits.

Conclusion

In the 2007 Afterword to the Third Edition of *Uneven Development,* Smith articulates the increasingly apparent failure of environmental politics and the triumph of the production of nature:

> An environmental politics that fails to grasp the depth and implications of such a marketization of nature – the extraordinarily creative ways in which corporate capitalism manages to reframe a genuinely use-value concern, such as reducing carbon emissions, into a question of economic value that is entirely inimical to the original concern – such an environmental politics remains stuck in a previous era (249).

And a couple pages on:

> The issue is not simply geophysical – searching for new resources under the earth's surface or in extra-planetary space – rather it is scalar. The biopiratic corporate ransacking of rainforests, ocean deeps, and human bodies for genetic material, combined with the financialization of carbon credits and myriad other environmental credits, suggest a world in which nature is rendered a powerful accumulation strategy, a biodiversity bank, all the way down (253).

The exploitation of the world's ecological diversity is not new; nor is the exploitation of property rights (i.e., the right of exclusion). And while Smith points to scalar exploitation and the financialization of nature in his conclusion, these processes too have been occurring for some time. George Henderson (1999), for example, describes how the circuits of capital came to envelop, restructure, and reproduce California agriculture at the beginning of the 20th Century. These evolutions of capital all have their dangers and their opportunities. The danger of

environmental crediting, and ecological economics more broadly, is in their appeal to a progressive movement attempting to hold capital responsible for its widespread despoliation of the universal means of reproduction – of air and water, soil and forest. Environmental credits are a way to account for the externalities of the dominant mode of production. But if all we do is account for them, then we inscribe them with a cost, and costs can be paid (by some). Without a system of distributive, procedural, and institutional justice to inform the dispensation of the right to pollute, or the right to develop a landscape, then ecosystem valuation can only ever create a more efficient system of uneven development. It can, however, provide moral cover for those with the capital to invest in the financialization of nature. And as we've seen in wetland banking, it can provide additional accumulation strategies for those with the right assets.

Yet no suture is invisible or permanent. Lefebvre sees the seeds of differential space within abstract space. Morgan Robertson reminds us to pay attention to the injuries and silences that result from the "struggle over the creation of value-bearing abstractions" from the materiality of nature. To the extent that the Army Corps of Engineers and the EPA fetishize and legitimize these value-bearing abstractions, a discursive regulatory capture has occurred in which a whole way of knowing the world is institutionalized as doctrine, and equality of regulation is redefined within the framework of a particular set of actors – the producers and consumers of environmental credit. The credit form – a short step from the money form – now mediates between people and their landscapes. Tim Mitchell describes this type of depoliticization and naturalization of the market. "The market," he writes, "is a simple image for picturing the relations between farmers, laborers, landowners, state officials, international agribusinesses, and consumers, an image that reduces these interrelated but very unequal concentrations of power into nominally equivalent buyers and sellers, and represents the inequality between them as the

market's equilibrium" (2002: 227). Thus Robert Tewis of the Army Corps can say the CDC *chose* not to purchase wetland credits. Alternatively, we can say they were denied the use-value of their land. As a result they were unable to produce a landscape; their wager on the future was circumscribed by the regulation of credit. Can we imagine a world in which access to other use-values are likewise governed? Seeds, fresh water, clean air? Can we say that someone simply *chose* not to purchase drinking water? While wetland banking does not have the same immediate consequences as water privatization in Bolivia or seed patenting in India, it does present many of the same dangers to a system of environmental and social justice and the power to produce a landscape of use-values, a landscape fit for social reproduction.

In the next chapter I will describe the project that the CDC has developed to replace the failed Viet Village Urban Farm. By comparing the two we can consider the material impact of wetland regulation on the lived experience of one group of people. I take this opportunity to explore questions of environmental justice as it relates to environmental governance. The equitable distribution of environmental pollution is clearly not a broad enough frame to describe the kind of exclusion and uneven accumulation that occurs through this mode of social regulation. How, then, do we develop concepts of environmental and social justice that incorporate critiques of market efficiencies, post-political scales of governance, and the production of environmental goods and services, rather than a traditional and limited focus on the distribution of environmental ills?

4: Uneven Erasures

The plan became what Latour terms an "inscription device," an assemblage of instruments, procedures, and practices that visually display representations of scientific truth. The plan as fetish, seen as itself a powerful object authorizing land use, performs three active erasures: the practice of planning itself, the previous histories of place, and the past experiences settlers will bring to the scheme.
- Donald Moore, *Suffering for Territory* (2005: 76)

Whether supplying resources for exploitation, wilderness for conservation, degraded landscape for improvement, or nuclear research "for a better tomorrow," nature has been the primary target through which bodies and populations – both human and nonhuman – have been governed, and it has been the primary site through which institutions of governance have been formed and operated.
- Jake Kosek, *Understories* (2006: 25)

Economics is part of the enframing that attempts to make what is internal to the economy distinct from what is external, and thus make calculation and exchange possible. It is therefore obliged to treat all these other processes as something secondary, minor, or exceptional. The self-deception is essential, for otherwise it would have to follow these links, powers, and leakages, and admit that there could be no economy.
- Tim Mitchell, *Rule of Experts* (2002: 300)

Introduction

We know what kind of social relations produce and are produced through wetland banking, and thus we know what kind of space, or landscape, is materialized through the process of wetland regulation and credit exchange. Put simply, it is a space of exchange and market homogenization, of scientific knowledge and panoptic vision, of capital accumulation and the financialization of nature. But if, as Lefebvre points out, spatial relations exhibit a primary dialectic between use and exchange, then wetland banks are also useful in all sorts of ways. They certainly function as political use-values for the strategies of governance outlined in the previous chapter. Through exchange, they sort spaces, creating a logic of settlement and development that spans the rural/urban and center/periphery continuum. Wetland banks enroll

topography and hydrology in this socio-ecological sorting process, effectively linking the right to pollute, or the right to develop, to class position.

I use class here as Harvey does, "as situatedness or positionality in relation to processes of capital accumulation" (1996: 359). Evaluating class discrimination through a lens of environmental justice requires more complicated subject categories than those offered by the duality between workers and capitalists, or owners of the means of production. Take Village de L'Est for example. Individuals earn their livings as shop owners and store clerks, fishers and farmers, factory workers and priests, social workers and hairdressers. Some are business owners and managers while others are line workers and small-scale agriculturalists. This community does not map neatly to the traditional definitions of class. However, we can say that the majority of individuals living in Village de L'Est are relatively low-income and less educated than the average individual in New Orleans or the United States as a whole. The neighborhood's relative wealth and access to power is minimal, though the CDC's ability to enroll a Congressman and a Senator to their cause are notable exceptions. Furthermore, the Vietnamese-American residents of Village de L'Est identify as refugees and transplants to Louisiana and the United States. Many of the older residents don't speak English and rely on go-betweens to negotiate the local political order and social service network. The post-Katrina protests over the landfill and the CDC's advocacy for Viet Village represent the organization of a communal power that was previously directed only inwardly – to self-organization and assistance. Furthermore, Viet Village Farm was a land development project designed by an organization imbedded in the community it served. The space was to be utilized by residents for their own enrichment. Financial profit, if there was any, was to be directed toward the small-scale growers and fishers that formed the older core of the Vietnamese community. There was no absentee landownership

or financial speculation, no development company and no shareholders. Here, class is a more holistic indicator of resources, purpose, distribution, and embeddedness. Rather than speaking strictly of owners and laborers, we can speak instead of the integrated livelihood strategies and relative access to power of a group of individuals, an organization, and a community. And we can contrast this with the class position of a Chevron or a BP, and their shareholders and investors, for example.

We should also remember that mitigation goes beyond sorting; mitigation produces a geography of access, trading use-values across spaces, relocating ecosystem functions and setting them aside. In order to manage the contradiction between the growth imperative and socio-ecological limits to production, wetland banking helps to redistribute opportunity and limits according to a certain kind of logic. In short, there is a distributive injustice to the logic of wetland regulation. So-called ecological limitations or regulations are apportioned to the population unequally according to class, thus freeing up space (literally) for continued accumulation. Just as Donald Moore's work on a land development scheme in Zimbabwe articulates the erasures inherent in "the plan" as inscription device – the planning process itself, the histories of place, and the occupants' experiences – so too does wetland mitigation obscure the uneven erasures perpetrated by a scheme of differential access to space, and through space, a vision of the future, for as Lefebvre tells us: "what is it that a buyer acquires when he purchases a space? The answer is time" (1974 [1991]: 356).

Yet it is not enough to simply conclude that certain people get to build the future and others don't. Isn't wetland mitigation and no net loss also a vision of the future, one that ultimately represents a public good? After all, what would exist in the absence of such regulation? We would still see development and the reorganization of hydraulic systems,

perhaps more haphazardly, and certainly we would see less rehabilitation of degraded sites and the gradual elimination of wildlife habitat. In places like southern Louisiana, we would see even more reckless degradation of critical storm buffers by oil and gas companies. So in the absence of such regulation, we might have a Viet Village Urban Farm in New Orleans East, but we should also ask what other landscapes are made possible as a result. And yet, in one of the most astonishing ironies and contradictions of the Mississippi Delta, the institution most responsible for the loss of coastal wetland today is the same institution tasked with regulating the development of wetlands. The Army Corps of Engineers, in order to fulfill its primary mission of flood control, has repeatedly channelized and restricted the flow of the Mississippi River. As a result, the alluvial siltation that occurred over centuries of flood events no longer replenishes land lost to storm and wave erosion. In order to make the current regime of habitation and accumulation possible, the Corps has interrupted the very ecosystem processes necessary for the reproduction of land in southern Louisiana. In short, the Corps, through wetland banking, attempts to stabilize certain contradictions of the production process even as it continues to reproduce other, more fundamental contradictions in the landscape. As John McPhee writes in *The Control of Nature*, "the Corps has been conceded the almighty role of God" (1989: 23). Wetland banking helps to conceal these contradictions and cross purposes, even as the Corps itself mitigates its own flood control projects through the purchase or production of wetland credits. The regulation of wetland development in the Viet Village Project must be considered in light of these much larger contradictions in the regional regime of accumulation and institutional action.

This chapter proceeds in two sections. First, I describe the project that has taken the place of Viet Village. This new project has not re-placed Viet Village physically – the purchased

land remains vacant – but we might say that the new project has re-visioned a productive landscape. It is useful to compare the two projects in order to understand the material implications of wetland governance in one particular space. In the second section, I consider wetland banking from the conceptual framework of environmental governance. Ultimately, I argue that environmental justice principles must be broadened in order to make sense of wetland banking, and the new governance regimes of ecosystem valuation more generally. Relatively recent work in the environmental justice literature goes a long way to considering not only distributive justice, but procedural, institutional, and productive justice as well.

Alternate Space: A New Vision after Regulation

The land originally designated for the farm remains as it was before, a forested wetland crisscrossed with overgrown dirt roads and hemmed in by rows of housing, the Mary Queen of Vietnam Church, and a large earthen levee towering over the adjacent bayou. A faded billboard across the street still displays a blueprint of the original site design, as if the project might commence tomorrow.

Figure 9: Overgrown roads winding through the Viet Village Farm site.

Figure 10: Standing water on site.

The CDC has moved on though. Daniel, the project manager, told me about their next initiative, the Village de l'Est Green Growers Initiative (VEGGI) Farmers' Cooperative. A partnership between the CDC, a local community college, Goodwill, and a federal job-training program, the Cooperative trains Vietnamese residents in sustainable and efficient commercial aquaponic growing techniques. Seed funding was provided by a Labor Department's National

Emergency Grant in the wake of the BP Gulf Oil Spill, which left a third of the Vietnamese community of New Orleans East without work (Nguyen 2012). The first phase of the project has "incubated" 16 backyard growers who collectively market and sell their produce to 20 restaurants and 2 grocers in New Orleans. According to Nguyen,

> VEGGI's current success can be attributed to a comprehensive and effective theory of change, which empowers growers through three main strategies: collective marketing assistance, increased access to entrepreneurial resources, and empowerment within a cooperative organizing model. The primary function of VEGGI is to provide participating growers with collective marketing assistance through pooled produce sales, branding, production coordination, and on-going market analysis. Pooled sales and branding has proven effective at allowing VEGGI's growers to access larger, higher paying markets, which has yielded a minimum 50% increase in price per unit produce sold.

The VEGGI project is framed in much the same way as Viet Village was, as an opportunity for economic development, agricultural entrepreneurship, collective action, and environmental sustainability. In their marketing materials, VEGGI highlights the high level of poverty – 61% of New Orleans East households reported 2009 income as less than $25,000 – and the lack of food access – the area is served by only one grocery store, and much of the East, including Village de l'Est, is considered a food desert by the USDA (Nguyen 2012). In 2013, VEGGI hopes to expand its cooperative to include 32 more growers and an additional 5 acres of agricultural production. Each grower receives training and a $4,000 micro grant to get started. Thus far, co-op members have farmed their own backyard plots, contributing produce to the collective for aggregation and distribution. Nguyen is working to acquire 5 acres of contiguous growing space that would transform the production phase into a collective process as well. This time they are avoiding wetlands, thus eliminating much of the undeveloped space in New Orleans East.

The VEGGI project acts as a miniature *food hub*, aggregating produce from multiple production locations and distributing it at larger volumes than any individual grower could. Without access to a large centralized space, the CDC decided to invest in the community's traditional agricultural geography – backyard garden plots. The disaggregation of space enabled the CDC to sidestep the issue of wetland mitigation, while still creating a joint agricultural development. By playing with the spatio-temporal ordering of the communal process, the CDC was able to begin maximizing small-scale efficiencies and individual land resources in Village de l'Est. Importantly, while the CDC launched the VEGGI project, it is now an independent organization, a true cooperative in which the growers act as the board of directors. This organizational structure was not a component of the original Viet Village plan, which was a more centralized project, driven by Father Vien and a small group of staff from the CDC. In fact, the VEGGI co-op germinated from a post oil spill meeting of about 120 displaced fishers from the Village de L'Est community.

Co-op farmers taught themselves how to build aquaponic systems, which are "micro-ecosystems" that incorporate aquaculture (fish farming) with hydroponics (growing plants in water). The system manages the circulation of nutrients and waste from the fish tanks to the vegetable trays, and the plants in turn filter the water for the fish, preserving up to 90% of the original water (WTUL News 2013). The co-op's interest in aquaponics was a direct result of the Gulf Oil Spill and the uncertainty associated with the closure of traditional fishing areas. The incorporation of aquaponics into more traditional soil-based agriculture merges the two elements that caused so much trouble for the CDC during the attempts to build the Viet Village Farm Project. With a small-scale, decentralized project, the VEGGI Co-op is literally creating wetland, albeit not in any sense that the Corps of Engineers would recognize.

A photo posted on the group's Facebook page shows a newly plowed field with the Mary Queen of Vietnam church in the background. The caption reads: "This is paradise. Our community's future cooperative farm." The use of the word *paradise* is striking, creating an unavoidable comparison with the mitigation bank in Paradis, Louisiana. Unsurprisingly, *Paradis* is French for paradise. Thus the juxtaposition of the two creates a linguistic tension between a small-scale agricultural cooperative – made up of victims of the largest oil disaster in the United States – and a sprawling wetland bank owned by a multinational oil company. Furthermore, the French origin of Paradis recalls a colonial history between the French and Vietnamese, highlighting the way in which these particular Vietnamese-Americans have been displaced twice, first by French and American military interests in Vietnam, and second by corporate interests in the Gulf of Mexico. By identifying the newly tilled land as the *future* of the community, the VEGGI Co-op is reclaiming both space and time from both oil companies and the federal regulatory process. And the CDC's new motto, "Return, Rebuild, Reclaim," explicitly identifies the purpose of the organization with the production of a certain landscape in a particular place.

A Question of Justice: Distribution, Process, and Production

The landscape produced by the VEGGI Co-op is an alternative land management scheme to that exhibited by the Corps through the process of wetland mitigation. Each vision operates on vastly different scales and with different purposes, but each is concerned with the circulation of biotic assemblages through an enviro-technical system. While not necessarily contradictory, this form of environmental governance constructed a mode of social regulation that held no room for Viet Village Farm, causing the CDC to turn to a disaggregated landscape of production within a geography that severely limited available (unregulated) land. It is perhaps the genius of

a market-based regulatory apparatus that we cannot say definitively that regulation precludes diverse and local visions of the landscape. After all, with enough money anyone can build anywhere. But this recourse to the market is itself the plan's fetish. Without any absolute ban on proposed projects, the regulatory apparatus obscures its own coercive power. Only by comparing the initial Viet Village proposal to the VEGGI Co-Op project can we identify the material impact of regulation on the local landscape vision. Through disaggregation the project becomes possible, but power also becomes more diffuse, less visible in the landscape. The CDC's continued efforts to find communal space for agriculture demonstrate the importance (and power) of congregation. Accumulation takes many forms, and the power to accumulate people and life-supporting products in space is an essential feature of the CDC's 'wager on the future.' Thus wetland mitigation organizes and restricts the flow and accumulation of people, products, and capital on the land, to the benefit of some and the detriment of others.

Wetland mitigation has been critiqued as a regulatory taking of private property by the federal government. Michael Braswell and Stephen Poe (1995) review the juridical arguments against wetland mitigation. They also cite the Clinton administration's response to these arguments:

> In rare instances the public interest in conserving wetlands may substantially interfere with the rights of the landowners. In such instances federal action will be based on the proposition that restrictions on the actions of the property owners in question are called for in order to protect the property rights, safety, environmental or economic interests of other individuals or the community at large (1995: 227).

The administration appeals to the public interest, but in such an amorphous way as to be nearly meaningless. I argue that without a clear expression of distributive and procedural justice, appeals to the public interest or a populist environmental ethic often fetishize the real selection of

winners and losers. For example, Braswell and Poe ultimately suggest that mitigation banks are the best means for overcoming the objection to regulatory takings:

> The use of wetlands mitigation banks, approved by the Corps, the EPA, and the Clinton administration, have been hailed as means of enabling landowners to realize the most value from their property as a wetland, and of creating economic incentives for private enterprise to engage in the creation, restoration, preservation, and protection of wetlands. In fact, the use of these banks might be the *fairest and most efficient means of balancing the competing public policies of protecting landowners' private property rights and preserving our nation's wetlands for the common good* (emphasis added, 1995: 231).

For Braswell and Poe, the application of free market principles achieves a certain flexibility of the environmental regulation, ensuring the "fairest and most efficient means" of governance. The contradiction between private property and the common good, or the second fetish, is reconciled by the first, the money form of exchange. Here, money, or the universal equivalent, relieves us of the work of defining which interests make up the common good. What is good is linked with the equality of exchange, and hence, those who represent the common good are those with the money to express their interests. The market provides political cover to the governing apparatus – since the Corps no longer has to make a final decision to allow or prohibit a development from taking place – and the governing apparatus offers an additional circuit for the flow of capital into and through ecosystem functions. Meanwhile, the discourse of the common good works to obscure the uneven distribution of development and the power that comes from and is represented by the production of a landscape of accumulation. Wetland banking, while it oils the gears of regulation, and likely increases the production of well-designed and functional wetland environments, also reinforces the uneven development of socio-natures along class lines. It is true that the environmental benefits of wetland preservation may be distributed more broadly across social groups; however, the economic benefits of

development, and as we have seen in Village de L'Est, the power to congregate and accumulate within a landscape, are distributed according to the inequities of market exchange.

Meanwhile, the Corps itself continues to literally erase coastal wetlands on a much larger scale through its flood control activities. In order to stabilize the landscape and protect it from tremendously destructive flood events, the Corps is, in effect, destabilizing the entire coastal ecosystem by preventing the deposition of sediment along the banks of the river. Such contradictions and uneven erasures remain unresolved, and are even obfuscated, through the regulatory mechanism of wetland banking.

Appeals to social justice often, as David Harvey (1996) points out, fall into a perilous abstraction of universal and homogenizing principles, muddling significant difference and doing violence to identity. Even so, Harvey argues for a "politics of abstraction capable of reaching out across space, across the multiple environmental and social conditions that constitute the geography of difference." Such a politics must "deal in the material and institutional issues of how to organize production and distribution" (1996: 400). George Towers defines environmental justice as an appeal to both "distributive and procedural justice" (2000: 23). For Towers, distributive justice is concerned with "outcome equity." While Towers is concerned primarily with scale, outcomes are, in fact, produced landscapes. I argue that distributive justice, in the geographical sense, should be viewed as the access to power to construct particular spaces. This is a more expansive concept than the one Towers employs. For him, environmental justice is concerned with the equitable distribution of "noxious land uses" at the scale of humanity (2000: 23). This formulation of justice, often denigrated as NIMBYism, echoes Engels' assertion that the bourgeoisie can only deal with socio-economic problems by either moving them around or making them invisible (Harvey 1996: 408). But how do we apply a form of

justice that is concerned with the equitable distribution of eco-social ills (i.e., pollution) to the practice of wetland banking, in which the landscape product would not rightly be considered pollution at all? In fact, one can argue that a wetland bank is itself an environmental amenity. In short, we must consider a definition of environmental justice that includes Harvey's focus on both distribution and production, and we must evaluate wetland banks for both the role they play in enabling certain kinds of accumulation, and for restricting certain kinds of spaces, or more specifically, certain kinds of people from producing space.

Laura Pulido (2000) opens up this kind of conceptual space for environmental justice by considering racism through the lens of white privilege. She argues against a narrow definition of environmental racism as the *intentional* citing of environmental ills in minority neighborhoods. For Pulido, "By the requirement of malicious intent, entire dimensions of the social arena are exonerated from contributing to racial inequality, including the unconscious. The normal functioning of the state and capitalism are thus naturalized, as racism is reduced to an aberration" (2000: 19). She describes how the market specifically is seen as "operating outside the bounds of race." Instead, by focusing on white privilege, Pulido demonstrates how "in order to preserve and fully exploit the privilege associated with whiteness, presumably well-intentioned individuals respond to market forces and social structures in ways that reinforce racist hierarchies" (30). From this focus on structural racism and inequality, Pulido identifies "space as a resource." In short, "neighborhoods are not merely groupings of individuals, homes, and commerce, they are *constellations of opportunities* with powerful consequences, for both the recipient and nonrecipient populations (2000: 30, emphasis in original). Such a concept of environmental justice, one that concerns itself not only with the distribution of pollution, but with access to "constellations of opportunities," provides a framework for considering the

inequity associated with wetland banking and the market exchange of environmental goods and services.

In fact, recent work within the environmental justice frame celebrates the rapid expansion of theoretical and contextual perspectives highlighted both in the literature and in the field. Walker (2009) identifies three distinct understandings of justice that each contribute to what Schlosberg (2004) calls a "trivalent" theory and praxis: distributional justice, justice as recognition or misrecognition, and justice as participation and procedure. Walker argues that a more pluralistic appreciation of environmental justice counteracts the legacy of a more circumscribed focus on the unequal Cartesian distribution of environmental pollution, a legacy that, while it has produced important work, also obscures "forms of inequality that do not fall into such a simple and particular spatial form" (2009: 28). Holifield et al. (2009) echo this sentiment, arguing for a more explicitly contextual investigation of environmental justice in which discursive place framings play a role in defining justice at multiple scales. Drawing on Heynen (2003), they argue that it is important to consider the multiple meanings associated with greenspaces, in addition to their geographic availability. One person's environmental amenity might be a source of discomfort or danger to another. Recent work has also identified the political work of conflicting scales of operation and regulation. Sze et al. (2009) describe the "Delta Vision" planning process undertaken by California State for the Sacramento and San Joaquin Delta, arguing that a discursive framework emphasizing the "common good" undermines the multiple and diverse rights claims of emplaced peoples who emphasize the inherent messiness of the "place[s] of everyday life" (Holifield et al. 2009). These more complex and situational framings of environmental justice can help us understand the variety of injustice and uneven reproduction of space perpetuated by wetland banking as governance

strategy. Particularly, work on the variable meanings associated with apparent environmental amenities and the conflict between expressions of the common good and the actual places of everyday life resonate strongly with the CDC's experience with Viet Village and Paradis Mitigation Bank.

The EPA Office of Environmental Justice offers its official definition of the term, a definition that Ryan Holifield (2001) characterized as differing little from earlier notions of environmental equity and subject to scientific measurement. In 2013, the EPA describes environmental justice as:

> the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
>
> - **Fair treatment** means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies
>
> - **Meaningful Involvement** means that:
>   1. people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
>   2. the public's contribution can influence the regulatory agency's decision;
>   3. their concerns will be considered in the decision making process; and
>   4. the decision makers seek out and facilitate the involvement of those potentially affected
>
> (EPA Office of Environmental Justice 2013)

Even in institutional definitions of environmental justice we can see a movement toward considerations of procedural and institutional justice, in addition to distributive justice. I would argue, however, that the EPA intends a rather thin version of justice in this definition. By striving for fair treatment and meaningful involvement in the "development, implementation, and enforcement" of environmental regulation, the EPA attempts to move beyond a narrow focus on the citing of environmental hazards. However, if we accept at this point that market-based regulation of environmental goods and services produces an uneven socio-environment and an

application of governance predicated on variable levels of income, then we should conclude that wetland banking violates the EPA's own definition of environmental justice. After all, fair treatment and meaningful involvement should be secured regardless of *income*. Clearly, the EPA does not consider market exchange to be a system of income discrimination. And yet, when regulation appeals to the exchange-value of ecosystem services, those who can afford to pay can inevitably access a greater *constellation of opportunity*, and thus reproduce a pattern of uneven development.

There is a danger, as Harvey describes in his discussion of ecological modernization, in a progressive movement that embraces the limited notion of distributive justice while abrogating the power to produce space itself. The VEGGI Co-op represents the CDC's continued struggle over the power to claim and construct a space conducive to the reproduction of certain livelihood practices. While these practices are anything but abstract or universal, the struggle itself is one of access, and access is something we can build a positive concept of environmental justice around. But what does access mean? Certainly the CDC had access to the Viet Village site in the sense that they could walk around on the land. There were no physical barriers constructed by the regulatory process. And yet, in its current form the land provided no use-value for neighborhood residents. Simply being in space meant little in this context. A more robust version of access is necessary to articulate an environmentally just outcome. As mentioned previously, federal wetland regulation has excluded the CDC from producing a landscape that works for them (i.e., a productive landscape). It follows that any concept of environmental justice, in this case, must include a contextually specific definition of a locally productive landscape. As a "place of everyday life," Viet Village must be assessed as a potential livelihood strategy. The fact that this site could be used to produce food (both for subsistence and market

exchange) for a community struggling with socio-economic inequality and reeling from recent disasters – Hurricane Katrina and the BP Oil Spill – means that, in this case, the justice of environmental regulation must be assessed, in part, by the economic opportunity foreclosed by wetland mitigation. In such circumstances does the "common good" outweigh the real and practical good achieved by increasing a community's capacity to maintain a certain standard of living?

The question of justice here is further complicated by the variable meaning and value of the wetland to the adjacent inhabitants. It is relatively defensible to maintain that at the scale of the nation – the operational scale of the "common good" – wetlands can uniformly be considered environmental amenities with quantifiable ecosystem values. However, at the scale of the neighborhood there exists "a dynamic spatial patchwork rather than a placeless space that exists only to serve a nebulous common good defined at the abstract scale of the State" (Holifield et al. 2009: 605). For the CDC, the Viet Village site is an overgrown, contaminated dump site that is ringed by levees, offering little in the way of environmental amenity or service. It's only value lies in its potential use as a space of communal agriculture and congregation. Such divergent spatial imaginaries existing at different spatial scales should alert us to the potential for environmental injustice (of representation, process, and distribution).

Conclusion

In this chapter I have argued that traditional notions of environmental justice as the equitable distribution of environmental hazards are not substantial enough to make sense of new environmental governance strategies such as ecosystem valuation and market exchange. Even as institutional definitions of environmental justice expand to include procedural equity, unless we

understand the market as a mechanism for increasing the opportunities of some while limiting that of others, we will fail to understand the reproduction of uneven power relations, and hence the uneven production of space embedded in a regulation regime that privileges the exchange-value of environmental goods and services over their use-value for certain people in particular places and times. Key to this understanding is an analysis of the competing meanings and values attached to particular landscapes at different scales. Environmental nuisances and amenities are not uniform; rather, they are imbedded in particular discursive frames and material livelihood strategies. The preservation of wetland acreage might easily be assessed a national common good while simultaneously ruining a primary reproductive strategy for a localized group of people. I am not arguing for the consistent privileging of local concerns over the national. I am, however, arguing that recent framings of environmental justice can offer more nuanced assessments of the impacts of environmental regulation, and that such regulation should be judged according to the total impact that an exclusion would have on the places of everyday life, rather than the "placeless space" of the common good. Judged in this manner, the jurisdictional wetland determination at Viet Village undermines the ability of low-resource farmers and fishers to reproduce their livelihoods in a changing enviro-technical system, a system that they have relatively little control over, but oil majors like BP and Chevron are capable of (intentionally or not) reshaping every day.

Conclusion

I believe in such cartography - to be marked by nature, not just label ourselves on a map like the names of rich men and women on buildings. We are communal histories, communal books. We are not owned or monogamous in our taste or experience. All I desired was to walk upon such an earth that had no maps.
-Michael Ondaatje, *The English Patient*

In this thesis I have attempted to trace the various flows of people, water, resources, and capital through the environmental governance strategy known as wetland banking. I have argued that a critical investigation of these flows reveals an uneven distribution of and access to power – the power to produce a certain landscape of use and exchange value. This particular mode of eco-social regulation is associated with ecosystem valuation and the circulation of environmental goods and services through the market. The operations of the market inscribe a regulatory regime into the material and discursive landscape of wetland mitigation. In order for such a market to function, significant work must be done to establish definitions, measurements, and categories for certain enviro-technical systems that produce wetlands and their various functions as legible, stable, and commensurable. Such work is both discursive and material – landscapes are physically measured and sampled, and those samples are classified according to a hegemonic system of value.

At the same time that wetlands are being produced as certain kinds of objects, certain environmental subjects are also produced. In order for wetland banks to function as bearers of value, someone must value their credits. The state, through expert techno-managerial institutions, establishes a market for wetland credits by excluding certain people from the right to produce certain landscapes in particular places. Ultimately, the dual labor of measurement and exclusion produce the exchange-value that circulates through wetland credits. This example of the financialization of nature is a project of hybrid regulation in which the state and market

interact to stabilize a regime of accumulation. Wetland banking can only make sense when considered side by side with what it enables, which is, paradoxically, the continued development of wetlands. In other words, wetland banking offers capital a resolution to the systemic underproduction of the conditions of production (e.g., storm buffers, waste water filtration, flood control, and wildlife habitat). By appealing to the presumptive equality of the market, it also mitigates both the social frustration with regulation itself and the opposite - outcry against the wanton destruction of the use-values associated with wetland environments (including leisure and aesthetic enjoyment). The market for wetland credits creates a regulatory environment that, at first glance, appears a model of equality, efficiency, flexibility, and decentralization, balancing the needs of individual landowners with the public good of robust ecosystem services. Yet the equality of the market ultimately discriminates according to class position.

I have argued that we need a broad notion of environmental justice to make sense of the discrimination of market regulatory mechanisms. Limited notions of environmental justice, focusing solely on the equitable distribution of environmental hazards, would applaud the pricing of former externalities accomplished through wetland mitigation. Such a perspective would see no discrimination of policy or regulation associated with the freedom of the market, and it would find no *malicious intent* in the uneven landscapes that result from ecosystem valuation. In order to understand the structural classism perpetrated by such a mode of eco-social regulation, we need a concept of environmental justice that sees the landscape as a "constellation of opportunities" (Pulido 2000) accessible to some and not others. Regulatory spaces are not entirely uniform and commensurable; they are also differential spaces in which use-values are produced and social relations are reproduced.

The Vietnamese refugees who came to New Orleans in 1975, and those that followed, have gradually constructed new eco-social relationships utilizing hybrid technologies and knowledges. The flow of people, biotic material, water, waste, oil, and capital through the canals and ocean routes and pipelines have combined to produce strategies for living and a regime of accumulation. This movement and accumulation has always been regulated in some way by multiple actors. The Mary Queen of Vietnam Church regulates a community through pastoral power. Chevron and BP regulate the flow of oil, capital, and people through built infrastructure, political contributions, and the financialization of nature. The Army Corps of Engineers regulates the destruction of wetlands, the settlement of people, and the flow of water through public works projects, the US Congress, wetland banks, GIS maps, and satellite imagery. All of these regulatory regimes interpenetrate and produce hybrid schemes and overlapping modes of environmental and social management. These relations are not conversations between equals; rather, they are shot through with power, both hegemonic and overtly coercive. The produced landscape channels power, allowing it to flow and accumulate. On the Viet Village parcel an artificial ditch flows to an intermittent stream, which continues on to a canal and out into the Intercoastal Waterway. This pathway allows the regulatory apparatus of the Corps of Engineers to circumscribe the land, labeling and categorizing it in a certain way. The outflow of water and inflow of power relations actively enrolls the land in a national system of wetland management. New flows of capital are activated as one space is exchanged for another, the regulatory liability transferred across watersheds and through time. The implications for people are real - one plan for the future, one livelihood strategy, is foreclosed and others open up.

On March 25th, 2013 the VEGGI Farmers' Cooperative announced that it had completed its first one acre community farm. The press release describes the transference of skill and

passion that occurs when many backyard growers come together in space to produce a shared landscape:

> We are fortunate to have the farmers that we have; who are not only hardworking but are genuinely passionate about their work. Not only that, but each of our farmers really enjoys the type of work that they do. They also enjoy each other's company and learn new techniques from one another. This kind of relationship has only strengthened our cooperative as farmers feel that they can easily bounce new ideas off each other and everyone's opinions will be heard…
>
> We are very excited to use this new acre plot, which increases our growing capacity by 400% over what we were doing with just backyard systems and allows us to grow more varieties of produce. We look forward to providing our supporting restaurants and farmers markets in New Orleans with the produce from this farm very soon! (VEGGI Farmers' Cooperative 2013)

The Cooperative describes adapting vertical growing technologies and aquaponic systems from the micro-space of the backyard to the cooperative space of the farm. This process of scaling up is also a process of congregation. The new landscape creates new pathways for the flow of vegetables and fish, as well as capital and power. The relationships that are built – between growers, with restaurants, with funders and media – create new scales of action and new systems of regulation. Geographies of isolation are altered as these new pathways form.

Figure 11: VEGGI Co-Op farmers construct new rows.

Daniel Nguyen describes how a communal farm project brings multiple generations of residents together. Old farmers teach the next generation how to grow food, while the young, college-educated children of refugees apply their entrepreneurial skills to brand marketing, fundraising, and social media. Spatial congregation enables a cross-generational dialogue that strengthens the reproductive strategies of a whole neighborhood. The VEGGI Cooperative is an example of individual backyard ecosystems transposed onto a larger, communal property, a scaling up of property rights in order to access larger networks of provisioning. Meanwhile, the plot across the street is noticeable for its lack of human activity. The land itself is busy reproducing a relatively isolated wetland ecosystem. Standing water mingles with bottomland hardwood and cypress swamp. During heavy rains water accumulates and is slowly released into the adjacent canal. The plans for Viet Village accounted for this flow of water, guiding it through pools, swales, and channels, putting it to work as a purifying agent and medium for growth. Here, water is a source of power in the sense articulated by Richard White (1995), as potential energy and social organization. The meanings it carries are dramatically different for neighborhood residents than they are for the Corps or for the public at large.

But for everyone, the control of water is a prerequisite for sustained life in the Delta. Decisions about its use may make life more or less possible at different scales of habitation. The very attributes that serve to label spaces according to their ecosystem services, may be more or less valued according to one's proximity to the space itself. Because private property is a blunt tool for articulating variable rights to land, wetland regulation does not differentiate between absentee landlords and those living adjacent to the places they wish to create. This helps to reproduce an uneven geography of development and access to opportunity. The Delta's ever-changing geography never settles on a final form. It emerges from a multitude of conversations

and struggles. It is no accident, and yet it is rife with surprises. Diverse socio-natures are agents in the production and dissolution of landscape. At the moment, and despite the Corp's redoubled efforts, southern Louisiana is still losing substantial acreages of wetland – to sea level rise, to storm erosion, to levee construction and urban development, to oil and gas channelization, to sediment subsidence and the restriction of the Mississippi River. The cross purposes of the Corps – to prevent wetland loss and to control flood events – prevent a coherent pattern of regulation. Meanwhile, climate change and the resulting sea level rise remind us that we are part of a global socio-environmental system that is adapting rapidly to new inputs. Such a global scale ignores the national no net loss policy and the regulatory authority of the Corps of Engineers. Despite the advent of wetland banking and the flexible re-regulation of ecosystem functions, all indications suggest that we will fail to achieve no net loss. The systemic underproduction of the conditions of production remains a major concern for places like southern Louisiana. Longtime residents and newcomers alike wonder if there will be a landscape here at all in the coming years. There is no guarantee.

This particular regime of accumulation and mode of regulation offer up their own inherent contradictions, even as they attempt to suture others. A national policy for the protection of wetlands actually promotes the development of wetlands by assigning them an exchange-value. Diverse landscapes are made commensurable through powerful tools of measurement, calculation, and observation. It would seem that the more discerning our tools become the more confident we are in assigning markers of uniformity and commensurability. Market governance purports to offer regulatory flexibility and put everyone on an equal playing field, when in fact it violates a robust notion of environmental justice by discriminating according to class, and class is so intimately connected to race – particularly in New Orleans –

that wetland mitigation operates in an inadvertently racist way as well. Specifically, low-income individuals and communities of color are least capable of paying to mitigate the impacts their livelihood strategies have on surrounding wetland environments. As a result, they are denied the ability to pursue some of these localized livelihood strategies, while a real-estate developer or an oil company can afford to enroll the same piece of land in an accumulation strategy that involves absentee landownership. Wetland banking creates a re-regulated environment that enables companies with fixed capital sunk into the land to revalue acres in the form of wetland credits, thereby rewarding the extractive industries that have caused so much of the historical wetland degradation in the region. And purchasing a wetland credit actually means an exemption from regulation, while the wetland bank becomes the debtor responsible for the repayment of wetland acreage into the national stock. Meanwhile, the Army Corps of Engineers continues to prioritize the construction of hard flood control structures – levees, artificial channels, flood gates, spillways – in an attempt to maintain the habitability of the region, even as the channelization of the Mississippi River continues to restrict the deposition of alluvial sediment that is so essential to the reproduction of coastal wetlands.

These paradoxes reveal both the fetish of the market-as-regulator and the unstable foundation upon which a national wetland swap policy sits. How long can such a regulatory structure hold up under such contradictions? The coastal wetlands of Louisiana may well be one of the first places in which this present enviro-technical system becomes untenable, particularly if our regulatory regime continues to foreclose local, small-scale adaptive livelihood strategies such as those articulated in the Viet Village project. The Delta has always been, and continues to be, a land of trembling earth upon which temporary and shifting worlds are built, and space exists for a time.

References

Airriess, Christopher (2002). Creating Vietnamese Landscapes and Place in New Orleans. In *Geographical Identities of Ethnic America: Race, Space, and Place.* Kate Berry and Martha Henderson (eds). (Reno, Nevada: University of Nevada Press). 228-254.

Airriess, Christopher and David Clawson (1994). Vietnamese Market Gardens in New Orleans. *Geographical Review* 84(1): 16-31.

Airriess, Christopher; Wei Li; Karen Leong; Angela Chia-Chen Chen; Verna Keith (2008). Church-based social capital, networks and geographical scale: Katrina evacuation, relocation, and recovery in a New Orleans Vietnamese American community. *Geoforum* 39: 1333-1346.

Bakker, Karen (2003). From public to private to…mutual? Restructuring water supply governance in England and Wales. *Geoforum* 34(3): 359-374.

Bakker, Karen and Gavin Bridge (2006). Material worlds? Resource geographies and the 'matter of nature'. *Progress in Human Geography* 30(1): 5-27.

Beck, Ulrich (1999). *World Risk Society*. (Cambridge: Polity Press).

Biggs, David (2010). *Quagmire: Nation-Building and Nature in the Mekong Delta*. (Seattle and London: University of Washington Press).

Bragg, Rick (2000). Vietnamese Refugees in New Orleans Find a Little Peace. *The New York Times.* Accessed 8/16/12.

Braswell, Michael and Poe, Stephen (1995). Private property vs. federal wetlands regulation: should private landowners bear the cost of wetlands protection? *American Business Law Journal* 33(2): 179-234.

Bridge, Gavin (2000). The social regulation of resource access and environmental impact: production, nature and contradiction in the US copper industry. *Geoforum* 31:237-256).

Bridge, Gavin and Jonas, Andrew (2002). Governing nature: the reregulation of resource access, production, and consumption. *Environment and Planning A* 34:759-766.

Bridge, Gavin and Perreault, Tom (2009). Environmental Governance. In *A Companion to Environmental Geography*. Eds. Castree, Noel; Demeritt, David; Liverman, Diana; and Rhoads, Bruce. (Malden, MA: Wiley-Blackwell).

Brumbaugh, Robert (1995). Wetland mitigation banking: entering a new era? *US Army Corps of Engineers Institute for Water Resources*. Accessed 2/11/13.
http://el.erdc.usace.army.mil/elpubs/pdf/v5n3/brum.html

Bruno, Stephanie (2011). Viet Village Urban Farm plans hit environmental snag. *The Times-Picayune*. Accessed 2/12/12.

Butler, Robert Olen (1992). *A Good Scent from a Strange Mountain*. (New York: Grove Press).

Butz, Lauren (2010). Viet Village Urban Farm update for EPA & USDA. *Mary Queen of Vietnam Community Development Corporation*. (unpublished correspondence dated 3/17/10).

Butz, Lauren (2010). Reply to Mr. Robert Tewis, Subject: MVN-2009-1191-ETT. *Mary Queen of Vietnam Community Development Corporation*. (unpublished correspondence dated 3/11/10).

Cao, Anh (2009). Letter to Robert Tewis, November 19, 2009. Office of Anh "Joseph" Cao. *Congress of the United States.*

Charpentier, Colley (2007). Swampland scooped up in '70 speculation on the auction block. *The Times-Picayune*. April 26, 2012. Accessed 4/27/12.

Colten, Craig (2005). *An Unnatural Metropolis: Wresting New Orleans from Nature*. (Baton Rouge: Louisiana State University Press).

Colten, Craig, ed. (2000). *Transforming New Orleans and Its Environs: Centuries of Change*. (Pittsburgh: University of Pittsburgh Press).

Corlett, Jan (2003). Hmong Gardens: Botanical Diversity in an Urban Setting. *Economic Botany* 57(3): 365-379.

Cowdrey, Albert (1977). *Land's End: A History of the New Orleans District, U.S. Army Corps of Engineers, and Its Lifelong Battle with the Lower Mississippi and Other Rivers Wending Their Way to the Sea.* U.S. Army Corps of Engineers, New Orleans District.

DeGregorio, Jen (2010). Oil and gas development permits overwhelmingly approved by Louisiana. *The Times-Picayune*. May 30, 2010. Accessed 4/27/12.

Eaton, Leslie (2006). A New Landfill in New Orleans Sets Off a Battle. *The New York Times*. Accessed 3/26/12.

Environmental Protection Agency (2009). Mitigation Banking Factsheet. Accessed 3/26/12. www.epa.gov/owow/wetlands/facts/fact16.html

Environmental Protection Agency Office of Environmental Justice (2013). Statement on environmental justice. http://www.epa.gov/environmentaljustice/basics/index.html Accessed 3/30/13.

Fairclough, Norman (2003). *Analyzing Discourse: Textual analysis for social research*. (London and New York: Routledge).

Foucault, Michel (1981). The Order of Discourse. In *Untying the Text: A Post-Structuralist Reader*. Robert Young, ed. (Boston and London: Routledge).

Foucault, Michel (1991). Governmentality. Graham Burchell, Colin Gordon, and Peter Miller (eds), *The Foucault Effect: Studies in Governmentality*. (Chicago: University of Chicago Press).

Fox, Stephen (1981). *The American Conservation Movement: John Muir and His Legacy.* (Madison: University of Wisconsin Press).

Gardner, Royal (2011). *Lawyers, Swamps, and Money: U.S. Wetland Law, Policy, and Politics.* (Washington and London: Island Press).

Gidwani, Vinay (2008). *Capital, Interrupted: Agrarian Development and the Politics of Work in India.* (Minneapolis and London: University of Minnesota Press).

Gutierrez, Raul (2009). EPA memo MVN-2009-01191-ETT 10/28/09. *Environmental Protection Agency, Region 6*. (unpublished correspondence dated 10/28/09).

Hall, Stuart (1997). *Representation: Cultural Representations and Signifying Practices*. (London: Sage).

Harvey, Christine (2012). Wetlands mitigation rules get tougher, and St. Tammany officials get worried. *The Times-Picayune.* March 4, 2012. Accessed 4/27/12.

Harvey, David (1996). *Justice, Nature & the Geography of Difference.* (Malden and Oxford: Blackwell Publishing).

Harvey, David. (2006 [1982]). *The Limits to Capital*. (New York: Verso).

Henderson, George (1999). *California and the Fictions of Capital*. (New York: Oxford University Press).

Holifield, Ryan (2001). Defining environmental justice and environmental racism. *Urban Geography* 22(1): 78-90.

Holifield, Ryan; Porter, Michael; Walker, Gordon (2009). Spaces of Environmental Justice: Frameworks for Critical Engagement. *Antipode* 41(4): 591-612.

Hough, Palmer and Morgan Robertson (2009). Mitigation under Section 404 of the Clean Water Act: where it comes from, what it means. *Wetlands Ecological Management* 17: 15-33.

Katoomba Group (2010). US Wetland Banking. *Ecosystem Marketplace*. Accessed 2/11/13. http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?section=biodiversity_market&page_name=uswet_market

Katz, Cindi (2008). Bad elements: Katrina and the scoured landscape of social reproduction. *Gender, Place and Culture* 15(1): 15-29.

Kenny, Alice (2006). Chevron Opens Mitigation Bank in Paradis(e). *Ecosystem Marketplace*. March 30, 2006. Accessed 3/26/12.

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

Kusler, Jon (2004). The SWANCC Decision; State Regulation of Wetlands to Fill the Gap. *Association of State Wetland Managers, Inc.* (Berne, NY). http://aswm.org/pdf_lib/swancc_decision_030404.pdf

Labban, Mazen (2011). History, Space and Nature: Building Theory from the Exception. *New Political Economy* 16(2): 253-259.

Landrieu, Mary (2010). Letter to Lauren Butz, August 30, 2010. Office of Mary Landrieu. *United States Senate*.

Leong, Karen; Christopher Airriess; Wei Li; Angela Chia-Chen Chen; Verna Keith (2007). Resilient History and the Rebuilding of a Community: The Vietnamese American Community in New Orleans East. *The Journal of American History* (December 2007) 770-779.

Lefebvre, Henry (1974 [1991]). *The Production of Space*. (Malden and Oxford: Blackwell Publishing).

Lopez, Barry, ed. (2006). *Home Ground: Language for an American Landscape*. (San Antonio: Trinity University Press).

Lydersen, Kari (2009). Landfill Worries Cloud Hope for New Orleans Gardens. *The Washington Post*. Accessed 3/26/12.

Marx, Karl (1976). *Capital, Volume 1*. (New York: International Publishers).

McNeill, J.R. (2010). *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914.* (Cambridge: Cambridge University Press).

McPhee, John (1989). *The Control of Nature*. (New York: Farrar, Straus, and Giroux).

Mitchell, Don (2012). *They Saved the Crops: Labor, Landscape, and the Struggle over Industrial Farming in Bracero-Era California*. (Athens and London: University of Georgia Press).

Mitchell, Timothy (2002). *Rule of Experts: Egypt, Techno-Politics, Modernity.* (Berkeley: University of California Press).

Moore, Donald (2005). *Suffering for Territory: Race, Place, and Power in Zimbabwe.* (Durham & London: Duke University Press).

Nguyen, Daniel (2012). VEGGI Farmers' Cooperative Summary (personal communication). 12/17/13.

Nguyen, Gennie Thi (2007). Home is Where Rice Is: Maintaining and Transforming Cultural Identity Beyond the Borders of Vietnam. *Lambda Alpha Journal* 37: 25-38.
PBS Independent Television Service. *A Village Called Versailles.* Community Cinema Discussion Guide. www.pbs.org/independentlens/village-called-versailles.

O'Connor, James. (1998). *Natural Causes: Essays in Ecological Marxism*. (New York: The Guilford Press).

Ondaatje, Michael (1993). *The English Patient*. (London: Vintage Books).
O'Neil, Karen (2006). *Rivers by Design: State Power and the Origins of U.S. Flood Control.* (Durham and London: Duke University Press).

Packer, George (1992). From the Mekong to the Bayous. *The New York Times*. Accessed 11/17/12.

Paradis Mitigation Bank. Location of Paradis Mitigation Bank and Barataria Basin. https://upstream.chevron.com/paradis/index.asp. (Accessed 1/13/13).

Part 230 – Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Clean Water Act of 1977. (33 U.S.C. 1344(b) and 1361(a)).

Perreault, Tom and Gabriela Valdivia (2010). Hydrocarbons, popular protest and national imaginaries: Ecuador and Bolivia in comparative context. *Geoforum* 41: 689-699.

Perreault, Tom; Wraight, Sarah; and Perreault, Meredith (2012). Environmental injustice in the Onondaga Lake waterscape, New York State, USA. *Water Alternatives* 5(2): 485-506.

Pratt, Geraldine (1999). From Registered Nurse to Registered Nanny: Discursive Geographies of Filipina Domestic Workers in Vancouver, B.C. *Economic Geography* 75(3): 215-236.

Pritchard, Sara (2011). *Confluence: The Nature of Technology and the Remaking of the Rhone*. (Cambridge and London: Harvard University Press).

Pulido, Laura (2000). Rethinking environmental racism: white privilege and urban development in southern California. *Annals of the Association of American Geographers* 90(1): 12-40.

Robbins, Tom (1984). *Jitterbug Perfume*. (New York: Bantam Books).

Robertson, Morgan (2011). Measurement and alienation: making a world of ecosystem services. *Transactions of the Institute of British Geographers* NS 2011: 1-16.

Schleifstein, Mark (2012a). Louisiana scientists working on plan to save coastline, fight global warming. *The Times-Picayune.* January 28, 2012. Accessed 4/27/12.

Schleifstein, Mark (2012b). Corps projects mitigating damage from rebuilding levees unveiled. *The Times-Picayune*. March 15, 2012. Accessed 4/27/12.

Schleifstein, Mark (2012c). Developers must spend too much to mitigate for wetlands loss, agency members are told. *The Times-Picayune*. March 31, 2012. Accessed 4/27/12.

Schlosberg, David (2004). Reconceiving Environmental Justice: Global Movements and Political Theories. *Environmental Politics* 13(3): 517-540.

Scott, James (1998). *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. (New Haven and London: Yale University Press).

Serio, Pete (2009). Corps memo MVN-2009-1191-ETT 12/10/09. *Army Corps of Engineers, Regulatory Branch, Operations Division, Eastern Evaluation Section, New Orleans District.* (unpublished correspondence dated 12/10/09).

Serio, Pete (2009). Official Corps Wetlands Jurisdictional Determination. *Army Corps of Engineers, Operations Division, Surveillance and Enforcement Section, New Orleans District.* (unpublished correspondence dated 4/15/09).

Smith, Neil (2009[1984]). *Uneven Development: Nature, Capital, and the Production of Space.* (Athens, GA: The University of Georgia Press).

Stiglitz, Joseph (2012). *The Price of Inequality*. (New York and London: W.W. Norton & Company).

Sze, Julie; London, Jonathan; Shilling, Fraser; Gambirazzio, Gerardo; Filan, Trina; Cadenasso, Mary (2009). Defining and Contesting Environmental Justice: Socio-natures and the Politics of Scale in the Delta. *Antipode* 41(4): 807-843.

Tang, Eric (2007). Rebel Survivors: The Vietnamese of New Orleans East won a grassroots victory nobody expected. *A Katrina Reader*. (katrinareader.org). Accessed 3/26/12.

Towers, George (2000). Applying the political geography of scale: grassroots strategies and environmental justice. *The Professional Geographer* 52(1): 23-36.

Truitt, Allison (2012). The Viet Village Urban Farm and the Politics of Neighborhood Vitality in Post-Katrina New Orleans. *City & Society* 24(3): 321-338.

U.S. Army Corps of Engineers Regulations 33 CFR 328.3 (33 U.S.C. 1344).

US Army Corps of Engineers, Team New Orleans. How can wetlands be recognized? http://www.mvn.usace.army.mil/ops/regulatory/rec_wet.asp

US Army Corps of Engineers (1987). *Wetland Delineation Manual*. Wetlands Research Program Technical Report Y-87-1 (online edition). http://www.mvn.usace.army.mil/ops/regulatory/wlman87.pdf

VEGGI Farmers' Cooperative (2013). VEGGI completes new farm. http://www.veggifarmcoop.com/2013/03/25/veggi-completes-new-farm/ Accessed 3/31/13.

Vileisis, Ann (1997). *Discovering the Unknown Landscape: A History of America's Wetlands.* (Washington and Covelo: Island Press).

Walker, Gordon (2009). Beyond Distribution and Proximity: Exploring the Multiple Spatialities of Environmental Justice. *Antipode* 41(4): 24-46.

Wetlands Restoration and Improvement Act of 1996. H.R. 3692. 104th Congress, 2nd Session (1996).

White, Richard (1995). *The Organic Machine: The Remaking of the Columbia River*. (New York: Hill and Wang).

Williams, Jeff (1995). Louisiana Coastal Wetlands: A Resource at Risk. U.S. Geological Survey, Marine and Coastal Geology Program. http://marine.usgs.gov/marine/fact-sheets/Wetlands/index.html

Wooten, Tom (2012). *We Shall Not be Moved: Rebuilding Home in the Wake of Katrina.* (Boston: Beacon Press).

WTUL News (2013). VEGGI Farmers' CoOp (video recording). http://wtulnews.tumblr.com/post/42844190596/veggi-farmers-coop Accessed 3/5/13.

Michael Kantor
521 N Hennessey St
New Orleans, LA 70119
504-228-7982
mskantor@syr.edu
mikantor@gmail.com

EDUCATION

***Master of Arts, Geography*, 2013**
Maxwell School of Citizenship and Public Affairs, Syracuse University
Thesis Title: "Banking on the Impossible: The Political Life of Wetlands in Southern Louisiana."

***Bachelor of Arts*, 2008**
Vassar College
Departmental Honors in Geography

AWARDS

University Fellowship, Syracuse University, 2011-2013

ORGANIZATIONS

Association of American Geographers (AAG)

PROFESSIONAL EXPERIENCE

Second Harvest Food Bank of Greater New Orleans and Acadiana
Director of Public Affairs and Community Engagement 2011-Current

Covenant House New Orleans
Program Manager 2010-2011

Environment America
Federal Field Organizer 2009-2010

Rockland Farm Alliance
Community Coordinator 2008-2009

Camp Hill Farm
Farm Manager 2008-2009