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**Regulation and Resistance: Pesticides, Farmworkers, and
the Production of California's Agricultural Landscape**

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**Regulation and Resistance: Pesticides, Farmworkers, and the
Production of California's Agricultural Landscape**

by

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Abstract

Regulation and Resistance: Pesticides, Farmworkers, and the Production of California's Agricultural Landscape

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This study examines the role of pesticides and immigrant farmworkers in the production of California's agricultural landscape. While pesticides are more strictly regulated in California than any other state, pesticide exposure persists with alarming frequency in low-income rural communities, and particularly among immigrant farmworkers who comprise the vast majority of California's vast agricultural labor force. The objectives of this study are twofold. First, I trace connections between the intimate scale of the body and global scale of agricultural production and food supply. Through an engagement with feminist geographic concepts such as the global-intimate and countertopography, I examine how anti-immigrant hostility exacerbates farmworkers' experiences with pesticide exposure, and consequently, how these communities mobilize for environmental and immigrant justice. Second, I explore how the political and economic geographies of agricultural-urban interfaces shape environmental justice struggles. I focus on a set of regulations proposed by the California Department of Regulation in 2017 which govern the application of restricted pesticides around schools, and situate the ensuing

regulatory debate within the physical landscape of agricultural-urban interfaces where farms and neighborhoods meet.

All research took place within the Central Valley of California, including Madera, Merced, Fresno, Tulare, and Kern Counties, over the span of six weeks in June and July 2017. This study employs mostly qualitative research methods, including secondary data analysis, observant participation, in-depth and semi-structured interviews, and focus group facilitation, and some use of Geographic Information Systems and the California Environmental Health Tracking Program Pesticide Mapping Tool.

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Chapter One: Introduction

California's agricultural landscape is characterized above all by its extremity. It is at once a site of staggering wealth and widespread poverty, a laboratory for the most industrialized and agroecological forms of farming, a contact zone of rapidly shifting urban and rural topographies, and a space animated by extractive capitalism and vibrant political resistance. California's multibillion dollar agricultural economy, largely situated in the San Joaquin Valley, is the most productive in the United States, providing over a third of the country's vegetables and two thirds of its fruit (Walker, 2004). Yet in spite of its agricultural wealth, the state's top producing counties - Fresno, Tulare and Kern - are also among its poorest (Public Policy Institute of California, 2016). Reliance on CalFresh benefits, California's Supplemental Nutrition Assistance Program (SNAP), for example, is highest in Tulare County, the state's, and the nation's, leader in farm production (Villarejo, 2015). Moreover, Latino and Hispanic residents, many of whom are connected to farmworker communities, often comprise the majority population in these counties' poorest areas (see Figure 1). Environmental change undoubtedly has compromised California's agricultural dominance. While its economy remains the strongest in the nation, it is uncertain whether and how long its status as the nation's top producing state

will last (Fox, 2016).¹ Since 1980, the population of the greater Central Valley² has nearly doubled to 3.8 million people, and is expected to increase to 6 million in 2020 (Fault, 2009). The US Geological Survey anticipates that population growth, reductions to Colorado River water access, and ecological crises induced by extractive industries will intensify demand for natural resources (Faunt, 2009). The confluence of these phenomena makes the Central Valley an important location of inquiry, particularly given its immense consequence to both California's and the U.S.'s food supply.

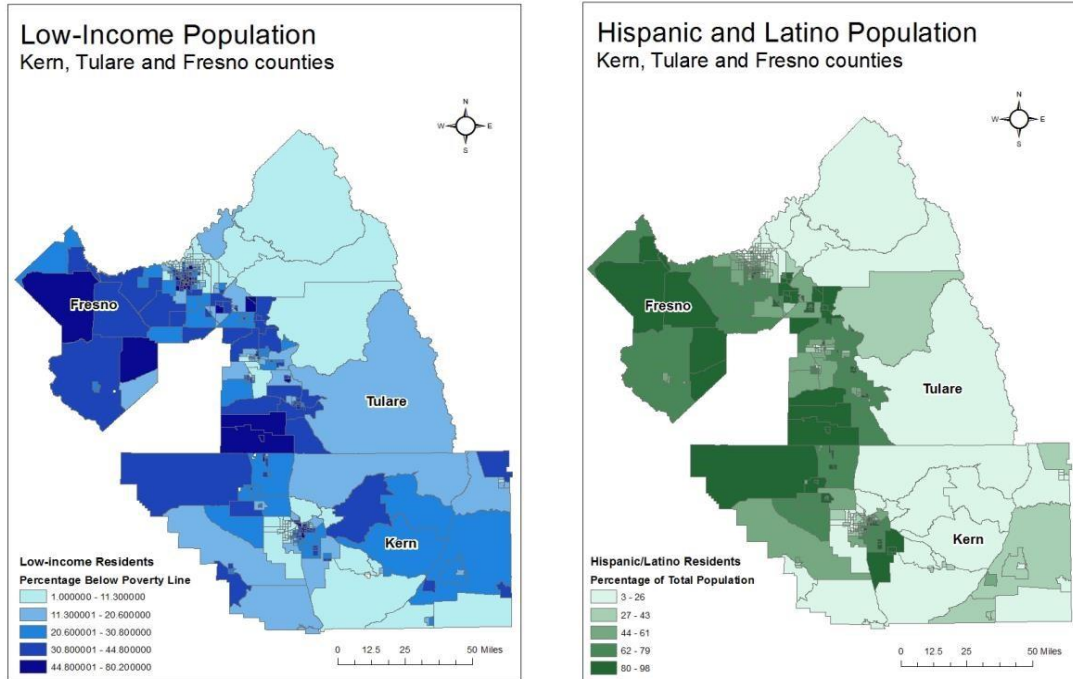


Figure 1: Low-Income Hispanic and Latino Communities – Kern, Tulare, and Fresno
 (Source: United States Census Bureau TIGER/Line Shapefiles; United States Department of Agriculture Food Access Research Atlas)

¹ The ag-economy decreased by 17% from 54.7 to 45.4 billion dollars (USDA ERS 2016), due in large part to several years of drought, yet higher revenues were reported in 2015 than in earlier, wetter years because farmers pumped local reservoirs and groundwater reserves.

² The San Joaquin Valley and Central Valley are often used interchangeably. However, the San Joaquin Valley is technically a sub-region of the greater geographic region of the Central Valley.

California's landscape, in short, begets many contradictions. My Master's thesis consequently began as an excavation of sorts. I soon discovered that a host of contradictions were in fact the conditions of possibility that allow environmental injustice to endure even amidst broad regulatory oversight. The state's pesticide regulatory apparatus is widely considered the most robust of its kind in the United States, yet pesticide drift incidents among the rural poor and immigrant communities of color persist with alarming frequency (Harrison, 2006, 2008, 2011). Relatedly, despite the establishment of impressive legislative protections over the past 40 years, the economic status of farmworkers has deteriorated with the concentration of the farm economy and growers' increasing reliance on labor contractors to oversee hiring and working conditions (Villarejo, 2015). During my fieldwork I identified two conditions that at least exacerbate, if not cause, these unremitting environmental and social violences. On one hand, there is the long history of hostility toward immigrant Latinx communities in the United States - a cruel irony considering that California's farming industry overwhelmingly relies on a foreign-born workforce to make its agricultural abundance possible. On the other hand there is the San Joaquin Valley's geography itself, full of what I refer to as agricultural-urban interfaces where these two divergent landscapes collide (Ames, 2002). These phenomena are not easily collapsed onto one another. Rather than draw overarching conclusions about the two data clusters, I wrote two stand-alone chapters to submit for publication.

THEORETICAL FRAMING

Race and the regulatory state

There is an extensive literature within and outside of geography on environmental justice (EJ) struggles and agriculture in California (Pezzullo, 2007; Alkon and Norgaard, 2009) – including soil lead contamination (McClintock, 2010), industrial toxin runoff in the Inland Empire (Sarathy, 2013), soil fumigant buffer zones (Guthman, 2016, 2017; Brown and Guthman, 2016) and most notably, pesticide drift in the San Joaquin Valley (Harrison, 2006, 2008, 2011; Liévanos et al., 2011). Much of this literature draws attention to the ways race and the regulatory state enter into environmental justice struggles. Alkon and Norgaard (2009) turn to the concept of food justice to frame and also to make connections between EJ activism in two “racially and spatially distinct” Bay Area communities. Food justice, they write, serves “as a theoretical and political bridge between existing work on sustainable agriculture, food insecurity, and environmental justice” and draws necessary attention to the ways in which institutional racism shapes food security (289). Similarly, Pulido (2016) describes environmental racism as an extension of a much longer legacy of labor and land struggles in settler-colony landscapes across the United States:

If environmental racism is indeed a function of racial capitalism, then the state immediately becomes problematic in new ways. This is crucial because in the US most activists and researchers are steeped in a liberal politics in which they work with the state. Instead, the state must become a site of opposition, as it sanctions racial violence (525).

Because racial capitalism is inseparable from the neoliberal regulatory state, some activists argue that they cannot rely on the state to make any meaningful interventions in

the corporate-capitalist industries that perpetuate environmental harm. Transformative political possibility, in other words, does not exist within or in alliance with the state regulatory apparatus.

Alternative notions of justice and biopolitical regulation

In recent years, scholarly engagement in environmental justice and pesticide activism has grown. In her study on regulatory neglect and pesticide drift activism in the San Joaquin Valley, Jill Harrison (2011) argues that state regulators operate with utilitarian, libertarian and/or communitarian conceptions of justice, whereas pesticide drift and environmental justice activists espouse an alternative conception of justice rooted in political transformation. Mainstream environmentalist and state regulatory notions of justice manifest in a cost benefits analysis of risk assessment and management (utilitarian), the promotion of market-based and voluntary solutions in mainstream agrifood activism (libertarian), and the outsourcing of regulatory oversight to local, county-level control (communitarian). California's regulatory apparatus is less invested in banning certain pesticides and pushing back against industry interests, than mitigating the effects of harmful chemicals. Pesticide activists, however, operate with an alternative conception of justice that takes into account the deep and wide-reaching effects of structural inequality and the importance of participatory policy-making. Julie Guthman (2016, 2017) and Sandy Brown (2016) also examine the state regulatory logic and the limits of mainstream agrifood activism, and draw on Michel Foucault's notion of biopolitics to frame debates over soil fumigant regulations.

My study is both an extension of and slight departure from this existing work. Following Harrison, Guthman, and Brown, I explore the politics of pesticide regulatory oversight and activism in California, but offer a different framing of these environmental and immigrant justice struggles. In Chapter Two, I use feminist geographic notions of the global-intimate and countertopography to articulate the interdependence between pesticides, immigrant farmworkers, and California's staggering agricultural economy (Katz, 2001; Mountz and Hyndman, 2006). These analytics articulate the interdependence between the U.S. and Mexico, between the Central Valley and the rest of California, between farmworkers and regulators, and finally, between the environmental and economic effects of pesticides on different stakeholder communities. In Chapter Three, I bring a new materialist analysis to the politics of scale literature in political geography to foreground the importance of physical landscape in shaping environmental justice organizing and political possibility (Bennett, 2005; Ahmed, 2007; Leitner et al. 2007). I broaden the analytical scope of political geography by acknowledging the role of more-than-human entities and spaces in shaping environmental and political struggles. Thinking about agency as an assemblage of human and nonhuman actors/action, versus a unidirectional or calculated form of intention, complicates notions of causality and culpability in ways that destabilize the hegemony of human perspective and experience.

OVERVIEW OF CHAPTERS

In Chapter Two, I trace connections between anti-immigrant politics and farmworkers' experiences with pesticide exposure, and explore the limits and possibilities of local environmental justice organizing. The objectives of this chapter are to examine how anti-immigrant hostility exacerbates farmworkers' experiences with pesticide exposure and how affected communities mobilize in resistance to environmental injustice. I conducted in-depth interviews with pesticide safety trainers, community workers, farmworker advocates and environmental justice activists, hosted a focus group with immigrant farm workers represented by the United Farmworkers Union (UFW), and conducted observant participation at several community events on immigrant and environmental justice. In nearly all of these encounters, I observed an overarching sense of fear, anxiety and emboldened frustration about anti-immigrant hostility and unrelenting environmental toxicity in rural communities across the San Joaquin Valley.

In my interviews with pesticide safety trainers and farmworker advocates, I asked about farmworkers' perceptions of state regulatory institutions like the Department of Pesticide Regulation (DPR) and County Agricultural Commissioner (CAC), their barriers to reporting, and what strategies farm-working communities develop to resist exposure to pesticides. While I already knew that DPR and CACs exist to protect workers from multiple forms labor exploitation that go beyond pesticide exposure, I also sought to understand the "pressure points" that lead to insufficient regulatory protections and/or

uneven regulatory enforcement.³ Once I had a sense of the barriers that prevent farmworkers from reporting exposure incidents and other labor violations, I hosted a focus group with several farmworkers to obtain firsthand accounts of their experiences. After they shared their stories with me, I asked them whether and to what extent they reported these incidents to employers and regulators. In interviews with community organizers, I asked questions about strategies for resistance, their experiences working with local CACs, and their regional and state policy priorities. Unsurprisingly, pesticides were but one piece of a much greater nexus of struggles facing these communities, and organizers' overlapping priorities reflected that.

In Chapter Three, I explore a still-ongoing debate about regulations passed by the Department of Pesticide Regulation (DPR) that limit pesticide application within a quarter mile around schools, and focus my attention on the spatial dimensions that inform this debate. In the years following DPR's initial announcement and eventual adoption of these regulations, nearly 19,000 public comments were made and several community organizations across the Central Valley came together to protest what they believe are inadequate protections against persistent low-level pesticide exposure near schools (Mart,

³ The Worker Protection Standard, for example, ensures a number of basic protections for farm workers, such as requiring employers to provide pesticide safety trainings, to inform workers about where and when pesticides have been applied, to protect workers from exposure through closely monitored application procedures and the provision of protective gear, to provide facilities for decontamination, and to facilitate medical treatment if necessary. Recent revisions going into effect in January 2017 expand on these protections even further, mandating yearly trainings (currently they are every 5 years), a minimum age requirement for handling pesticides, and an expansion of protective zones surrounding application sites and mandatory posting of no-entry signs for the most hazardous pesticides <https://www.farmworkerjustice.org/content/pesticide-safety>; US Environmental Protection Agency, Office of Pesticide Programs. [“Changes to EPA’s Farm Worker Protection Standard”](#). September 2015.

2017). Conflicts like this will likely grow in the years to come. Rapid population growth and rising land values have produced tensions between environmental safety concerns and the local agricultural economy, and most acutely so in spaces I refer to as “agricultural-urban interfaces”. These zones are extending across California as suburban development, including schools, increasingly encroach on agricultural land. I first encountered this term in the California Environmental Health Tracking Program’s (CEHTP) study on pesticide application around schools, whose findings formed the basis of multiple organizations’ policy demands for 1-mile buffer zones around schools (CEHTP, 2014).

The objectives of this chapter are to investigate how geographies of ag-urban interfaces shape pesticide regulatory enforcement and how different stakeholders negotiate the competing demands of environmental protection and the agricultural economy. I conducted in-depth interviews with state employees, environmentalists, and community organizers, and draw on conversations with affected residents at community events and informal gatherings. In my interviews with County Agricultural Commissioner and Farm Bureau staff, I sought to understand the “State’s” perspective on DPR’s regulations, their enforcement responsibilities, what they believed were notable misconceptions about their roles, and the kinds of relationships they had with community organizations advocating for stronger regulations. Relatedly, in my interviews with environmentalists and community organizers, I asked what their opinions were about pesticide regulatory enforcement (or lack thereof), their organizing priorities and policy reform strategies, how they decided to push for 1-mile buffer zones, and their experiences

working with CACs. These two groups have very different relationships to regulation and to pesticides themselves. They are, in short, very different subjects within ag/urban interfaces, and consequently navigate these political and economic geographies in strikingly different ways as well.

In Chapter Four, I briefly revisit my research objectives and offer recommendations for both future research directions and possible applications of this study's findings to policy and organizing strategies. These recommendations span deeper ethnographic accounts of migrants' experiences navigating regulatory and healthcare institutions and critical GIS pesticide mapping projects, both of which might contribute to the work of policy oriented environmental and immigrant justice organizations like California Rural Legal Assistance Foundation and the Center for Race Poverty and the Environment.

RESEARCH METHODOLOGY

In order to explore the roles of pesticides and farmworkers in California's agricultural system, I incorporate mostly qualitative research methods in this study, with the exception of some minimal use of ArcGIS and the California Environmental Health Tracking Program's Pesticide Mapping Tool.⁴ These methods include secondary data analysis, observant participation, in-depth and informal interviews, and focus group facilitation. In the sub-sections that follow I explain my use of each method in greater detail.

⁴ California Environmental Health Tracking Program, Pesticide Mapping Tool
http://cehtp.org/page/pesticides/agricultural_pesticide_use_in_california

Several months before beginning my fieldwork in California, I reached out to two San Joaquin Valley-based environmental and immigrant justice organizations - California Rural Legal Assistance Foundation (CRLAF) and the Center for Race, Poverty and the Environment (CRPE) - which have offices located in Fresno County and Kern County respectively. I chose to work with these organizations because they each serve communities with high concentrations of immigrant farm-working communities that disproportionately experience pesticide exposure incidents. I was introduced to Anne Katten, the Pesticide & Worker Safety Director at CRLAF, and Valerie Gorospe, a Community Organizer at CRPE, who became key informants in my fieldwork. Both women have been working at the intersection of immigrant and environmental justice in California for most of their lives. It would be an understatement to say that their insights and social and political connections were indispensable; without their support my Master's thesis would not have been possible.

Unsurprisingly, CRLAF and CRPE prioritized the struggles of undocumented farmworkers, and consequently, I aligned my research with their most urgent political commitments. In the months leading up to my summer fieldwork, the Trump administration announced two executive orders and two memorandums that would, among other things, enhance border security, strengthen immigration enforcement in the U.S. interior, expedite deportations, and most famously, build a physical wall along the

Southern border.⁵ Both organizations had clear organizing goals related to pesticide exposure and other environmental issues, but I soon learned that immigrant justice was by far their most urgent concern. Even though I initially I came to the San Joaquin Valley primarily to explore pesticide regulation and enforcement, it very quickly became clear that I had to adapt my research objectives to also examine the ways in which anti-immigrant hostility was connected to environmental injustice.

Secondary data analysis

California has the single-most heavily regulated agricultural industry in the United States, and oversight with respect to pesticide use is no exception. The Department of Pesticide Regulation (DPR) has some of the most restrictive laws governing the use, sale, licensing and application of pesticides in the country. I performed extensive secondary data analysis which included reading DPR regulations about pesticide application, familiarizing myself with different exposure reporting mechanisms, and comparing Pesticide Illness Surveillance Program (PISP) data on pesticide drift incidents in the San Joaquin Valley with other regions of California. These data offered a useful point of comparison to qualitative interview data and anecdotal evidence that I gleaned from observant participation.

⁵ Exec. Order No. 13766, 82 C.F.R. 8793 (2017). “Border Security and Immigration Enforcement Improvements.” Memorandum: Implementing the President’s Border Security and Immigration Enforcement Improvements. U.S. Department of Homeland Security, February 17, 2017
Exec. Order No. 13768, 82 C.F.R. 8799 (2017). “Enhancing Public Safety in the Interior of the United States.”
Memorandum: Enforcement of the Immigration Laws to Serve the National Interest. U.S. Department of Homeland Security, February, 17, 2017.

Because pesticides are produced specifically for their toxicity and are purposefully introduced into the environment, regulatory approaches to risk assessment and management focus largely on mitigating exposure to, rather than outright banning, certain pesticides (CDPR, 2006). Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), all pesticides distributed or sold in the U.S. must be registered and licensed by the Environmental Protection Agency (EPA). Before EPA may register a pesticide under FIFRA, the applicant must show that using the pesticide according to specifications, "will not generally cause unreasonable adverse effects on the environment", which FIFRA defines as, "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide..." (Environmental Protection Agency, 1996). This cost and benefits logic encourages reactive versus proactive solutions that favor agricultural and pesticide manufacturing industries, and opens up to interpretation the appropriate thresholds of exposure to toxicity.

According to CDPR, the size and diversity of California's agricultural industry, and the state's rapid urbanization, "require a more complex partnership between state and local pesticide regulatory authorities than anywhere else in the nation"⁶. Moreover, the San Joaquin Valley is the site of some of the heaviest pesticide application in the state

⁶ California Department of Pesticide Regulation, "County plays key role in regulating pesticides," Pesticide Info: What You Should Know About Pesticides, <http://www.cdpr.ca.gov/docs/dept/factshts/cac.pdf>, (accessed November 16, 2016).

(see Figure 2). A portion of CDPR’s budget supports local and decentralized pesticide permits and enforcement by County Agricultural Commissioners (CACs) in 58 counties. California is the only state that operates a permitting system for use of highly hazardous pesticides, and one of few states that have mechanisms for enforcing pesticide laws.⁷ Yet in spite of California’s robust pesticide surveillance system, illnesses resulting from exposure occur with surprising regularity, particularly in the Tulare, Fresno and Kern communities where I did my research.⁸

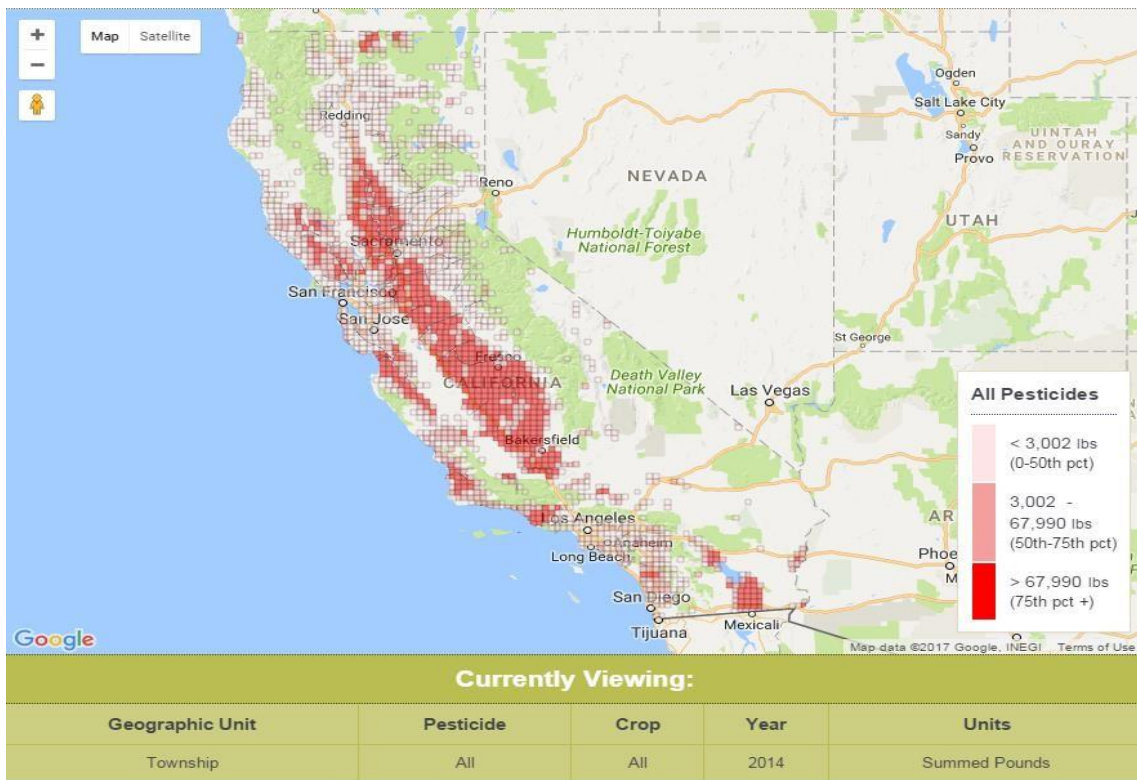


Figure 2: Application by Township, Summed Pounds, 2014 (Source: California Environmental Health Tracking Program Pesticide Mapping Tool)

⁷ California Department of Pesticide Regulation, “How California regulates pesticide use,” Pesticide Info: What You Should Know About Pesticides, <http://www.cdpr.ca.gov/docs/dept/factshts/main2.pdf>, (accessed November 16, 2016).

⁸ PISP Query 2000-2013, Kern, Tulare and Fresno counties.

Observant participation

I distinguish between observant participation and participant observation because the line between my “observing” body and the bodies of those “observed” is a blurry one at best. I recognize how my body will produce very specific types of encounters, and that those that I observe will similarly be observing me (Moeran, 2007). My role varied from nonparticipant to complete participant, depending on the nature of the volunteer work with CRLAF and CRPE and the activities I participated in at various research sites and public events. I considered myself a complete participant during small workshops on pesticide safety and awareness, whereas at larger community events, my role shifted to a nonparticipant observer. In these contexts, I took a step back and focused on who was present, what was said, and the event priorities and objectives. Initially, I expected to only attend community events related to pesticides, such as public hearings on proposed regulations. However, two weeks into my fieldwork with no directly-related events on the horizon, I opened myself to other types of gatherings with the hope of meeting people involved in environmental and immigrant justice more broadly.

The first of several events I attended was a court hearing between CRPE and a prominent oil and gas company in Bakersfield. CRPE demanded that the company provide Spanish language translations of their Environmental Impact Report for mostly immigrant Latinx residents of a neighborhood where oil extraction and fracking would take place. When Valerie invited me to the hearing, one of the first things she shared with me was, “Even though this is about something different, everything is connected here. It’s

never just about pesticides. Oil, air, water, immigration. It's all connected." This sense of interconnectedness was present in all the spaces I spent time in over the summer, from large public events on immigrant justice and healthcare access, to informal gatherings between colleagues and friends in cars, restaurants and neighbors' homes, to local grassroots organizing meetings on pesticide policy reform. In all of these encounters, I witnessed in people a shared recognition of an expansive and dense web of political, economic, and social struggle.

In-depth interviews and focus group facilitation

With Anne's and Valerie's generous assistance, I used a snowball sampling technique to identify other experts, community leaders, and residents, and ultimately conducted a total of 10 in-depth interviews (Given, 2008). These participants included two pesticide safety trainers, one environmental scientist and pesticide activist, one director of an environmental justice organizational network, three community organizers, two County Agricultural Commissioner office employees, and one county-level Farm Bureau employee. In addition to in-depth interviews, I had informal conversations with community members and resident-activists about their experiences with pesticide exposure, immigration enforcement, and environmental injustice broadly.

To gain grounded insight into farmworkers' experiences with and responses to pesticide exposure, I conducted a focus group with six farmworkers' (Barbour, 2007). The participants ranged from 35 to 55 years in age and had anywhere from a few months to 32 years of experience working in the fields. All participants were originally from Mexico, but I did not ask about their immigration status out of respect for their privacy

and the sensitive nature of this information. Anne Katten, of CRLAF, put me in touch with Alfonso, who is a labor organizer at the Madera United Farmworker Union office. Alfonso was entirely responsible for selecting and reaching out to the focus group participants, and coordinated the meeting within a week of our initial exchange. While Alfonso's role in this process was immensely helpful, because I did not communicate with the participants before our meeting, I suspect this limited the depth of what was discussed during the focus group.

I encountered a number of challenges during my interviews and focus group. Some interview subjects, such as CAC and Farm Bureau staff, requested not to be recorded during our interviews, so my observations and analysis of these interactions are based on handwritten notes. The conclusions I draw from these interviews are provisional, and I must note that inaccuracies may exist in my recollection of their perspectives and experiences. The remaining interview subjects agreed to be recorded but some requested to remain anonymous. I decided to change all interview subjects' names for the sake of consistency. I experienced an especially tense moment during the initial scheduled focus group with farmworkers represented by the Madera chapter of the United Farmworkers Union. On the day of our scheduled meeting, an Immigration and Customs Enforcement (ICE) officer was hovering around the UFW office, and the union leader, Alfonso, abruptly had to cancel our meeting. For this reason alone, I chose not to ask the participants about their immigration status. Alfonso rescheduled the focus group one week later but did not offer any details about the workers themselves beyond the fact that they had experienced some form of pesticide exposure in the past. I was also unable to

schedule follow up interviews with the individual farm workers, so here too my observations and conclusions are provisional.

REFLECTIONS ON POSITIONALITY

I am neither from the San Joaquin Valley, a native Spanish speaker, nor did I have any previous connections to the communities where I conducted research. Over the course of my M.A. program, and particularly during my six weeks of fieldwork, I reflected on the complexities of embodying and claiming certain identities, especially when time and space create distance from the experiences and communities that helped form those identities in the first place. I am originally from San Antonio, Texas and also spent a good part of my childhood in the Rio Grande Valley, where both sides of my Mexican--American family are from. Several members of my extended family, including my father, were once migrant farmworkers, but by the time I was born each of these family members had moved on to other forms of work and several ascended to upper middle-class status. The historical legacies of settlement, porous national and state borders, and shifting ideas of race have produced complex and fluid *Tejano* identities both within my extended family and the larger community I grew up in. So while I have personal connections to this work, I recognize that this connection is mediated by a significant degree class, education and citizenship privilege.

Put differently, I am acutely aware of how class--cultural assimilation has impacted my everyday lived experience and my relationship to identity. For these reasons, my positionality undoubtedly affected the interactions I had with people and the relationships we were able to cultivate. My Spanish language capacity, though proficient

- compounded by my brief time in the field - limited the depth of knowledge and intimacy I could achieve with monolingual Spanish speakers, for instance. And yet, nearly every person I spoke with, including those who represent regulatory and industry interests, was remarkably kind, open and patient with me despite my outsider status. In countless everyday encounters, people were shocked to find out that I was doing research in the Central Valley and were eager to share their experiences with me when they learned I was exploring environmental justice issues in agriculture. Something that many people remarked on was the sense of invisibility they experience as members of rural communities that are often overlooked by the mainstream media, let alone the academy. In consideration of this, the primary objectives of my thesis are to tell their stories with respect and gratitude and to accurately represent, to the best of my abilities, the immense complexity and resilience of these communities.

Chapter Two: Intimate-exposures: Linking pesticides to body and economy in California's San Joaquin Valley

INTRODUCTION

This chapter explores how pesticides and immigrant farmworkers - through their instrumental roles in California's agricultural economy - link distant places, people and political-economic processes. Pesticides transgress corporeal and environmental boundaries as they enter bodies, soil, water and air; whose movement, much like the trajectories of farm labor across California over the last century, is shaped by transnational capitalist market forces. I situate farmworkers exposure to pesticides within the current political moment of hostile immigration policy, poor healthcare infrastructure, and the inaccessibility of state regulatory institutions. While not overtly connected, both the U.S.'s long legacy of racist immigration law and its approach to environmental risk assessment demarcate bodies worthy of protection and those who are not (Guthman and Brown, 2016). Farmworkers, particularly those who are undocumented, are most susceptible to the effects of exposure because many fear retaliation from employers and often lack the resources and time to seek medical attention (Holmes, 2013). In a region whose agricultural abundance is dependent on heavy chemical-inputs and an immigrant labor force, chronic pesticide exposure in farmworker communities has become a naturalized and almost necessary effect of the San Joaquin Valley's agricultural economy.

Tracing connections between intimate and global scales, and emphasizing their mutual constitution, complicate the boundaries mapped onto embodied and topographic

space. Through an engagement with feminist geographic theorizations of the globalintimate, I link the “intimate” scale of the body to the “global” scale of economy to reveal how seemingly unrelated people and places are in fact connected and constitutive of each other (Mountz and Hyndman, 2001) and follow the multidirectional flows between places and across different scales to highlight how rural and immigrant communities make California’s agricultural abundance possible. How does an overarching sense of antiimmigrant hostility impact farmworkers’ access to state institutions that are supposed to offer protection from labor exploitation and environmental toxicity? I investigate how fear of retaliation, a general mistrust of growers and labor contractors, and a lack of culturally appropriate resources prevent farm workers from seeking support from state regulatory institutions. How do affected communities mobilize in resistance to pesticide exposure? I explore the extent to which farmworkers and residents interact with regulatory bodies such as the California Department of Pesticide Regulation and County Agricultural Commissioner offices versus local community organizations, and discuss how affected communities enact resistance to ensure their safety and well-being. How communities come to be seen as affected - by regulatory institutions, nonprofit organizations, or the communities themselves - is determined both by conflicting perceptions of safe/unsafe geographic proximity to chemicals and different thresholds for embodied harm.

The “forgotten California”

California is a state of many food landscapes. Notably, a significant disconnection exists between discursive representations of California’s landscape and the material production of this landscape on the ground. As Don Mitchell (1993) writes in his study of California’s migrant labor force, “The more the word landscape is used, the greater its ambiguity. And the greater its ambiguity, the better it functions to naturalize power” (2). Ways of seeing and representing landscape, in other words, have naturalized multiple forms of oppression experienced by those who produce landscape. These physical spaces are sites of multiple relations of power and ideologically-driven spatial organization. The San Francisco Bay Area, for example, boasts one of the most vibrant sustainable food movements in the nation; a region teeming with year-round farmers markets, luxury meal-delivery startups, boutique grocers, and an expansive network of food justice organizations. Julie Guthman (2004) has written extensively about California’s “good” food economy and its sustained inattention to class-cultural dynamics of exclusion. Consequently, the very spaces that “good” food inhabits can be inhospitable to the marginalized communities that advocates seek to support.

Journeying about three hours southeast of the Bay Area, ones approaches the San Joaquin Valley⁹ - the epicenter of California’s 47 billion dollar agricultural economy (Mohan, 2017) and the site of the heaviest pesticide application in the country. While

⁹ This region is often referred to as “the Central Valley”

food is grown just about everywhere in California, the San Joaquin Valley is notable for its staggering agricultural wealth and its persistent poverty and environmental pollution.

It is in many ways the “forgotten California” (Harrison 2011, 20), and for this reason a uniquely situated region to explore the political geographies of environmental injustice and uneven regulatory oversight. California’s agricultural economy also offers an ideal example of the way nature and society intersect under capitalism to produce extraordinary growth. It is not just the supposed wealth of “natural” resources such as land and labor that engender California’s economic success, but the social conditions of capitalism that encourage the exploitation of these resources in the first place (Walker, 2001).

During June and July 2017, I spent six weeks living in Fresno, CA to research pesticide regulation and enforcement across several Southern San Joaquin Valley counties including Merced, Madera, Fresno, Tulare, and Kern. My fieldwork brought me to places I did not anticipate going to, and some of the most memorable conversations I had took place in these unplanned encounters. During the spring semester 2017, I reached out to the Center for Race, Poverty and Environment (CRPE) and California Rural Legal Assistance Foundation (CRLAF) about volunteer opportunities to learn about their organizing work on safer pesticide policies. My approach was to narrow down my topic in relation to the political commitments of these activist organizations. My research brought me to events on doctor shortages and public health infrastructure, to an interfaith gathering on immigration enforcement and the fate of the Affordable Care Act, to a court

hearing on oil and gas extraction in a majority-Latinx immigrant neighborhood, and to grassroots *comités* on pesticide activism across the San Joaquin Valley. I quickly discovered that seemingly unrelated issues were quite interconnected; even in a place as geographically sprawling as the San Joaquin Valley - a region spanning eight counties and four hours of driving time - community organizing initiatives are necessarily collaborative efforts.¹⁰

Poor public health infrastructure and adjacency to chemically-intensive agriculture and oil and gas extraction create a sense of diffuse environmental toxicity in the San Joaquin Valley. It became increasingly evident how hostile immigration policy would exacerbate these conditions because undocumented residents - often the most directly impacted by environmental harm - would be further isolated by these policies. As a Unitarian pastor mentioned at an interfaith gathering I attended in Bakersfield, the Central Valley is “ground zero” for many if not most of the social problems the U.S. experiences. Yet, in spite of, or perhaps because of the ubiquity of so many social problems there, the San Joaquin Valley is a vibrant site of community organizing. The wave of anti-immigration executive orders and threats to healthcare wielded by the Trump administration in the months leading up to my fieldwork created an environment of fear and anxiety in many of the spaces I spent time in, but there was also a sense of urgency and emboldened resistance to President Trump’s agenda.

¹⁰ Counties include Stanislaus, San Joaquin, Merced, Madera, Fresno, Tulare, Kings, and Kern.

I am not from the San Joaquin Valley. Because the vast majority of grassroots organizing in the region is led by people who have grown up or spent most of their lives there, I anticipated that people would be suspicious of my motivations to study and participate in their political struggles. While I had relatively long-standing connections to Fresno through friends and family and had visited several times over the past six years, I was by many accounts an outsider. I reflected on my position within these communities and their struggles daily and did my best to be transparent with people about my reasons for conducting research on this particular issue in this particular region. Surprisingly, most of the people I spoke with were eager to share their stories with me; in fact, some people were more surprised about the fact that a graduate student was doing research there in the first place. My hope is that this analysis of scale - one that takes seriously the embodied forms of harm and largely unheard of struggles faced by communities in this region - will open up what terrains and experiences are worthy of investigation and intervention.

In section one, I offer a close reading of feminist geographic approaches to the global-intimate and countertopography (Katz, 2001), and apply this framing to the politics of pesticide exposure in the San Joaquin Valley. In section two, I examine how immigration and guestworker legislation has shaped California's agricultural landscape, paying particular attention to the ways migrant farmworker demographics have shifted with trade liberalization. In section three, I explore two central themes that emerged during interviews and participant observation at multiple community events - farmworkers' fear of retaliation and feelings of disposability. In section four, I show how

affected communities push back through coalitional organizing. Finally, I conclude with reflections on the gaps of my research and potential directions to move forward with.

THEORETICAL FRAMING A feminist politics of location

Feminist geographic critiques of globalization begin with a grounded awareness of how power asymmetries shape global processes. Globalization is not a new phenomenon, as cultural-economic exchange was unfolding long before globalization became a widely theorized and debated topic. Indeed, some feminists argue that globalization is merely a different way of saying and doing imperialism (Katz, 2001). Unlike masculinist critiques of globalization which focus on formal and public spheres of economics and politics, feminist critiques of globalization attend to casual and informal spheres - such as the home and the body - and shift the focus to the marginalized (Nagar et al., 2002). Additionally, these critiques emphasize the reciprocal aspect of capitalist social relations and racial, gendered, and class hierarchies.

Globalization has eroded old notions of sovereignty and territoriality (Brown, 2010), reconfiguring the world through dense interconnections (Grewal and Kaplan, 1994). These erosions simultaneously exacerbate existing inequalities and generate new forms of exploitation across multiple scales. Globalized capital and cultural flows, though, are not unidirectional, nor are they defined by a “purely locational politics of global-local or center-periphery” (Grewal and Kaplan, 1994, 13). Grewal and Kaplan (1994) resist characterizing the impacts of globalization solely in terms of hegemony or homogenization, or conversely, along axis of postcolonial subversion and liberation

alone. Transnational feminist praxis demands that researchers recognize the multiplicity of transnational cultural and capital exchange; only then researchers and activists can begin to understand material conditions that structure people's lives and build effective opposition to economic and cultural hegemonies.

Global-intimate interventions

The global-intimate interrogates the stark demarcation between personal, emotional, embodied, and informal scales of experience and “objective”, disembodied and formal narratives of global processes (Pratt and Rosner, 2006). “Through its participation in the tactile”, Pratt and Rosner (2006) write, “the intimate functions not as an opposite of the global, but as its corrective, its supplement, or its undoing” (17). The transnational flow of labor, chemicals and capital that course through California's agricultural system lends itself to a global-intimate analysis because the industry has been since its inception a corporate capitalist enterprise (Walker, 2004) that relies on steadyflows of low-wage migrant labor (Mitchell, 1993; Menchaca, 2016; Holmes, 2013). Mountz and Hyndman's (2006) definition of the intimate offers a generative framing of the corporeal, social, economic and political dimensions of pesticide exposure in farmworker communities:

[We] conceptualize the intimate as embodied social relations that include mobility, emotion, materiality, belonging, alienation. The intimate encompasses not only the entanglements rooted in the everyday, but also the subtlety of their interconnectedness to everyday intimacies in other places and times: the rough hands of a woman who labors, the shortness of breath of the child without medication, the softness of the bed on which one sleeps (447).

Some of the most harrowing symptoms of pesticide exposure manifest long after initial and often ongoing encounters. These are the chronic effects that become a part of the everyday fabric of people's lives - from family members living with cancer, increasing numbers of children born with autism, lingering chemical odors wafting through home and school, to medical expenses reverberating back to farmworker families in the U.S. and abroad. As Harrison (2011) remarks in her study on activist organizing around pesticide drift in the Central Valley, "as egregious as the big incidents are, activists view them as unfolding on a landscape of less dramatic, but pervasive agricultural chemical contamination and regulatory neglect" (8). The everyday effects of pesticides are tied foremost to the "intimacies and economies of the body" (Mountz and Hyndman 2006, 450), and are also bound up in the global insofar as they join a corporatecapitalist economy to rural geographies.

A countertopography of interdependence

Following a global-intimate analysis, countertopography is a useful analytic to understand how globalization shapes the interdependence between the U.S. and Mexico, between the Central Valley and the rest of California, between farmworkers and corporate-capitalist agricultural economies, and finally, between the instrumental value of pesticides and their harmful impact on bodies (Katz, 2001). By linking environmental and immigrant justice through this analytic, I seek to "provide the ground - literally and figuratively - for developing a critique of the social relations sedimented into space and for scrutinizing the material social practices at all geographic scales through which space is produced" (Katz, 2001, 1229). This process necessarily begins with the immigrant and

largely undocumented farmworkers who support California's agricultural economy. As of 2014, the estimated population of farmworkers in California was approximately 400,000, depending on the time of year. Of this population, over 90% are foreign-born and more than half are undocumented (NAWS, 2014). While migration from Mexico to the United States has been declining since the early 2000s (Passel et al., 2012; Gonzalez-Barrera, 2015), anxieties about illegal immigration have only grown in recent years, particularly in the aftermath of President Donald Trump's election in 2016. "Prevention through Deterrence" measures set an enduring norm of immigration enforcement since the 1990s, and the U.S.' regulatory approach has culminated in what seems like its most irrational and xenophobic iteration today. Promises of massive border infrastructure, bans on immigration from majority-Muslim countries, blurred divisions between state and federal law enforcement, and the leveraging of DREAMers to pass divisive regulation are unsurprising considering the legacies that brought us here.

The farming industry simultaneously is facing a labor shortage of crisis-like proportions as U.S. citizens consistently refuse jobs on farms, even with promises of wages exceeding the state minimum wage and competitive benefits like healthcare (Kitroeff and Mohan, 2017). The majority of agricultural labor is still performed by foreign-born and undocumented workforce (Jezdimirovic, 2017), and despite technological automation and developments in agricultural robotics, the vast majority of harvesting remains hand-and-knife (Mohan, 2017). California farming, in short, is in the midst of a dramatic transformation, whose future as the nation's leader in agricultural production is becoming more uncertain. Understanding this transformation must begin

with an engagement in the legacies of codependency between the U.S. and Mexico that brought us to where we are now (Menchaca, 2016). Menchaca's (2016) characterization of the U.S.' relationship with Mexico as one of "asymmetric codependency" is instructive here, as it emphasizes the exploitative yet selectively reciprocal nature of resource flows between the two countries. In the following section, I will show how migrant labor has been made, rather strategically, to be a crucial element of California's economy since the early 20th century (Mitchell, 1993).

POLITICAL CONTEXT

Anxious immigration strategies

Immigration and guestworker legislation has marked California's agricultural landscape since the mid-20th century. The U.S. implemented the Bracero Program (1942-64) to resolve alleged labor shortages during wartime, but as Mitchell (2012) reveals, the initiative did far more to sustain California's agricapitalist regime (32). By bringing in a surplus of workers and shifting the control of housing away from the state, the Bracero program cemented the low-wages and poor housing conditions that characterized

California agriculture for decades to come:

The bracero program was, across its history...a primary means of destabilization. A force for destabilization of working people, the bracero program was also a force for the stabilization of the profitable landscape: *it* saved the crops - precisely *because* it destroyed lives (422).

The establishment of the 1965 Immigration and Nationality Act (INA) in the aftermath of the Bracero era marked a major regulatory shift with its abrupt and sweeping

ceilings on migration from Mexico (Wheatley and Rodriguez, 2014). Migration during the previous two decades was more circular than in subsequent periods, with men moving back and forth between the U.S. and Mexico more easily and safely (Durand and Massey, 1992). INA dramatically reduced legal entry from Mexico into the U.S. even though the circumstances necessitating migration had not changed. Similarly, the 1986 Immigration Reform and Control Act (IRCA), while creating paths to legalization for 2.7 million undocumented residents, was introduced primarily to reduce migration from Mexico through militarization of the U.S./Mexico border (Wheatley and Rodriguez, 2014). In this way, the purpose of IRCA did not deviate significantly from previous immigration legislation. What IRCA did do, however, was create a budgeting precedent for immigration enforcement in the decades to come. From 1970 to 1985 the immigration enforcement remained around \$300 million, but with the passage of the IRCA in 1986 the budget began to increase and accelerated dramatically with the passage of Operation Blockade in 1993, Operation Gatekeeper in 1994, and yet again after the passage of the 2001 USA PATRIOT Act. By 2010 the budget stood at \$3.8 billion, nearly 13 times its pre-1986 level (Massey 2015, 289).

Paradox or neoliberal common sense?

The U.S.'s relationship to migrants, at least on the surface, appears to be a contradictory one when considering the coexistence of "Prevention Through Deterrence" measures and trade liberalization. In the same year of passing the North American Free Trade Agreement (NAFTA), President Clinton signed Operation Gatekeeper into law, laying the groundwork for enhanced militarization of the U.S./Mexico border. Their

simultaneity is notable but not necessarily anomalous (Ackerman, 2011). It is well known that NAFTA restructured Mexico's agrarian landscape by repealing state-subsidies and trade protections, pushing thousands of Mexicans from the countryside to urban areas and into the U.S (Carte et al., 2010; Torres and Carte, 2013; Martin, 2005). Edwin Ackerman (2011) argues that the coexistence of NAFTA and Gatekeeper is not, in fact, a paradox, and instead conceptualizes the U.S.' repressive immigration apparatus in relation to claims to social protection, arguing that this is a logic characteristic of neoliberal statehood:

[The] coexistence of NAFTA and Gatekeeper should be understood not as an anomaly but rather as [an] expected feature of contemporary statehood - one which, in short, turns to a repressive apparatus to advance a *claim* to social protection - a state function called forth by the very liberalization it is pushing (41).

Similarly, Brown (2010) describes the proliferation of wall-building and escalated border enforcement since the turn of the 21st century as responses to waning state sovereignty:

It is the weakening of state sovereignty, and more precisely, the detachment of sovereignty from the nation-state, that is generating much of the frenzy of nationstate wall building today. Rather than resurgent expression of nation-state sovereignty, the new walls are icons of its erosion. (24)

Harrison and Lloyd (2012) also speak to this phenomenon and identify a dramatic shift in immigration enforcement that once exclusively targeted geographic border areas, which now includes policing of the interior U.S. and workplace-targeted enforcement. This intensified form of enforcement, they argue, protects capital accumulation by ensuring a compliant and disposable workforce willing to take on long hours and low

wages and maintains the state's public-facing political legitimacy by pandering to xenophobic anxiety. Relatedly, Coleman (2007) argues that the post-9/11 war on terror has led to a significant increase in immigration policing in the interior of the United States, going against more mainstream geographic scholarship that has focused on the territorial margins of the state. Activities now considered illegal under immigration law have grown. Meanwhile, more non-federal delegates and local immigration officers are charged with enforcing the aforementioned immigration laws. These new spaces of immigration geopolitics, Coleman argues, illuminate a spatiality of immigration enforcement previously unconsidered by geographers.

Who are California's migrant farm workers?

Does it make sense to describe well-established California farmworkers as migrants? Relatedly, how should state institutions and advocates best meet the needs of this linguistically and culturally diverse population? This is ultimately a question about the problematics of demography and representation, and one that further emphasizes the difficulties of drawing conclusions about the experiences of a population that is multigenerational and increasingly multi-regional. In the cases of undocumented farmworkers, it is also difficult to track demographic changes of a community that is made to be invisible with ever increasing force. The University of California at Davis estimates that up to 70 percent of California farmworkers—approximately 560,000 people—are undocumented (The Packer, 2017). These workers are 40 years of age on average, have established homes and do not migrate any longer (Magagnini, 2017). Nearly three

quarters of all hired farmworkers are considered settled, meaning they work at a single location within 75 miles of their home (USDA ERS, 2016).

The migrant farmworker community has also diversified in the past twenty years. Multiple topographical lines tie Mexico to California, with new connections being made in more states throughout Mexico as a result of trade liberalization. While migration from the northern and central regions of Mexico to the U.S. predates neoliberal agrarian policies enacted during the 1980s and 1990s, these policies catalyzed new migration from indigenous communities in Southern Mexican states like Veracruz, Oaxaca, and Guerrero (Torres and Popke, 2013; Durand and Massey, 1992; Stephens, 2007). According to the National Agricultural Workers Study (NAWS), the proportion of migrants from Southern Mexico increased by four times over two decades, from 7% between 1991-1993, to 29% between 2006-2008. Similarly the proportion of migrants who identified themselves by the racial category of indigenous grew to 23% between 2006-2008 (Mines et al., 2010). In my interview with Nadia¹¹, a Mixteco Community Worker with the Indigenous Program at California Rural Legal Assistance, I learned about some of the several well-established indigenous communities throughout the San Joaquin Valley that her program serves. In Fresno county, for example, there is a large Mixteco community from San Miguel Cuevas, Oaxaca; in Madera county there is a high concentration of Zapotecs; and in Kern county there is a high concentration of Mixtecs from San Juan Mixtepec. This is but a small sampling of the San Joaquin's vast indigenous community, whose

¹¹ Name has been changed for anonymity

diversity presents unique challenges for institutions like DPR and local County Agricultural

Commissioner offices who oversee pesticide safety training and enforcement.

Stephens (2007) uses the concept of “transborder” instead of transnational identity to characterize indigenous migrants’ multi-cited existence across geographic, political, economic and racial boundaries. Nadia, a community worker I interviewed from California Rural Legal Assistance’s Indigenous Program in Freno, also evoked this concept when she spoke about indigenous farm workers’ relationship to their home communities -

A part of the culture for a lot of indigenous communities is that you have to give community service back to your town. It can be you traveling back there, serving in a board, or doing some other type of community service. You also have to pay a certain amount of money, like a penalty, if you can’t [offer service]. So if a school needs to be repaired, usually the money comes from community members. Either you have to go help fix it or you send money. If not, they take away your property. Your property is your property, but also belongs to the community. If you stop giving your community service back to your town, they have the right to take your land, or when you go back you have to pay all the penalties.

Indigenous migrants cross ethnic, cultural and regional borders within and outside of Mexico, and upon arriving in California face unique challenges because of linguistic barriers. Because DPR’s indigenous outreach currently is still quite limited, people like Nadia perform an essential role in tailoring safety trainings to the needs of California’s diverse indigenous communities.

ETHNOGRAPHIC FINDINGS

Situating farmworkers' experiences with pesticide exposure

The paradox of persistent pesticide exposure amidst expansive regulatory oversight is what initially drew me to the San Joaquin Valley (Harrison 2006, 2008, 2011). I sought to understand how stakeholders across various scales and spaces respond to, profit from, contest and/or renegotiate this paradox. As I spoke with more people active in organizing spaces across the Valley, though, I discovered it made little sense to study the politics of pesticide exposure in isolation. It became obvious that pesticide exposure, particularly among farmworkers and the rural poor, is also intimately tied to immigration politics, to healthcare infrastructure, and multiple other forms of marginalization that characterize this region. In the section that follows I explore themes that emerged during interviews with nonprofit staff, state employees, activists, and farmworkers, and during participant observation at several community events.

Because I did not have direct connections with farmworkers, I used a snowball sampling technique with key informants to identify people to interview. Anne Katten, the Pesticide & Worker Safety Director at California Rural Legal Assistance, and Valerie Gorospe, a Community Organizer at the Center for Race, Poverty and Environment, were instrumental in this process. Both women have been working at the intersection of immigrant and environmental justice in California for most of their lives, and it was toward their political commitments that I directed my research. After I approached them in spring 2017 to learn about volunteer opportunities with their respective organizations, both women offered to introduce me to local community organizing leaders and

farmworker advocates throughout the region. It was from these encounters that I began to trace connections between escalating anti-immigrant hostility and environmental injustice.

Fear of retaliation

Among the many people that Anne connected me with were Alicia, a Pesticide Safety and Outreach Coordinator at the Department of Pesticide Regulation (DPR) who is originally from Mexico; and Dora, Mexican-American pesticide safety trainer at Proteus Inc., a community based nonprofit organization that provides education, training and employment services to farmworker communities in the San Joaquin Valley¹². Both women shared that farmworkers are hesitant to report labor and safety concerns because they fear retaliation from growers and labor contractors. Alicia noted that several farmworkers she has trained do not know that DPR even exists, let alone that reporting channels are in place to support them through instances of pesticide exposure or other safety violations. Labor contractors, often former-farmworkers themselves, are the liaisons between growers and workers and are generally responsible for firing workers. -

Author: During these training, what are some of the main concerns, complaints or questions that come up?

Alicia: The number one issue is retaliation for farmworkers. They experience it themselves, they hear about it from other people, and people (labor contractors) talk. The workers tell me, “Oh, so and so complained and he got fired”. People talk. All the labor contractors, they all know each other, they all call each other up and say “Don’t hire this guy, he’s a troublemaker”.

¹² Both names have been changed for anonymity

Later in the interview, Alicia described the frustration farm workers experience even after they have tools to push back against exploitative labor conditions. As Alicia explained, “The workers tell me that nothing gets done. They say, ‘We complain, you give us the training, you give us the tools to ask for better labor conditions but nothing happens.’”. Beyond retaliation, Alicia and Dora mentioned that workers do not want to report because it is emasculating, or because they simply do not want to lose time on training and education that could be spent earning money. While this fear was certainly exacerbated by the xenophobia underlying President Trump’s executive orders, DPR and the CACs were already largely inaccessible to farmworkers in spite of the abundance of regulations on the books that would make them seem otherwise. Alicia also mentioned other less obvious forms of intimidation used by labor contractors involving incentives, often in the form of extra money or BBQs -

A lot of the foreman will give them incentives if there are no incidents or complaints, so they get pressured by their own peers or coworkers, “You better not say anything because we’ll lose the bonus”. The company will say it’s very proud that they didn’t have any incidents. But no, you didn’t have any incidents because you pressured them with money.”

Because pesticide regulatory enforcement is local and highly decentralized, oversight appears to be uneven and skewed toward agricultural industry interests. County Agricultural Commissioners (CACs) are responsible for overseeing pesticide permits and enforcement in each of California’s 58 counties.¹³ Local elected officials with close ties

¹³ California is the only state that operates a permitting system for use of highly hazardous pesticides, and one of few states that have mechanisms such as CACs for enforcing pesticide laws. California Department of Pesticide Regulation, “How California regulates pesticide use,” Pesticide Info: What You Should Know About Pesticides, <http://www.cdpr.ca.gov/docs/dept/factshts/main2.pdf>, (accessed November 16, 2016).

to the agricultural industry appoint CACs, who are then responsible for promoting the agricultural economy within the county (Harrison, 2011). Harrison (2011) notes, for example, that because DPR's overwhelming focus is on data collection and analysis rather than pesticide use reduction programs, its regulatory response to pesticide exposure is "hands-off" (514-515). Dora's comments reflected this problem -

Dora: This is just my opinion, but DPR gives money to our local CAC offices and they're supposed to inspect farms, ranches workers and to see if they're following the rules about water, hygiene, training, learning/remembering safety training...There aren't any teeth to the regulations. The Worker Protection Standard (WPS) regulations are on the books but you don't have a very aggressive or motivated inspectors to really inspect if people are following the law....The CACs aren't really interested in protecting the workers.

Author: What do they care about, in your opinion?

Dora: I don't know, but I'm going to suspect - and I could be completely wrong, I have nothing to back this up - but, you know, insect control, protecting the crops, issuing pesticide use licences to people to be able to spray pesticides. I think what they care about most is protecting the fruit, protecting the growers.

Nadia, however, mentioned some efforts CRLAF's Indigenous Program is doing to educate CACs on indigenous service provision and stronger cultural sensitivity,

We had a meeting with them two months ago, and gave them an overview of what an indigenous community member is. The feedback we got is that a lot of the staff didn't know how to properly attempt to find indigenous community members...A lot of them didn't know that there are indigenous people out here, or that there are people from Mexico that don't speak Spanish...We told them how likely it is to find indigenous community members out here, how to address language barriers, cultural sensitivity. I think they're very open to the idea of receiving trainings and are applying that knowledge in their investigations. I do see that they're developing a lot of materials for indigenous workers and focusing on pictures, recordings, getting training on video instead of [traditional] presentations.

Based on Nadia's comments, CAC's appear to be cultivating a stronger awareness of the needs of indigenous farmworkers, and the fact that CACs are making an effort to reach indigenous workers indeed is a sign of progress. Yet, the issue of *uneven* regulatory enforcement remains a problem, particularly in the realm of airborne pesticide drift. Dora spoke at length about how pesticide drifts is one of the most endemic and unenforced pesticide problems, "There's a whole attitude of "Why report it, nothing is going to change" among workers...When it's a drift issue and no one is throwing up in the fields, it's just kind of ignored." Harrison (2011) writes, "Pesticide drift incidents simply cannot be understood apart from the relations of oppression that characterize immigrant farmworking communities". She discovered in her interviews with community members that the majority of households located near the most severe drift incidents contain farmworkers. In other words, pesticide drift is not an isolated workplace hazard, but rather an everyday lurking possibility in the lives of farmworkers and the rural poor (30).

Alicia, Dora and Nadia, while lamenting the effects of pesticides, never self-identified as political advocates because activism is not within the legal bounds of their job responsibilities. Dora self-identified as a bureaucrat multiple times and attributed this to an issue of funding more than any other facto -

In order to be invited to go provide the trainings, an employer (grower) does not want anyone from legal services, or [a farmworker union]. They're trying to keep *all* of us out. They're trying to keep advocates out because you don't want someone coming in to check if you're following the regulations. So when we marketed our services we'd preface that we're just health workers because our goal was to get in there and do the trainings. So that's how it's always been...You had to train 1200 workers in a year and you had to get permission to go into the fields. Balancing the reality of getting permission to get in vs. the reality of keeping [federal] funding was so difficult.

While all three women had opinions about the regulations and the uneven enforcement of safety protections they witnessed in farmworker communities, they were hesitant to speak out about these concerns in the form of political protest or as activist representatives of their respective places of work.

“They care about the fruit more than us”

To gain more direct insight into farmworkers experiences with pesticide exposure, I conducted an hour long focus group with seven farmworkers originally from Mexico - Gloria, 46, Carla, 40, Lana, 55, Marta, 35, Epifanio, 45, Blanca, 42, and Ana, 42 - who had anywhere from two months to 32 years of experience working in the fields.¹⁴ A United Farmworkers Union organizer, Alfonso, recruited the participants and coordinated the meeting. The week prior, I met with Alfonso about an hour before the original focus group was scheduled to run through my questions and to interview him about his experiences as an organizer. About halfway through our meeting, Alfonso was called outside by the Madera UFW office manager who had noticed a Department of Homeland Security officer lingering outside. Alfonso quickly scrambled to reach out to the workers he had invited to warn them and asked that we reschedule to the following week. I decided not to ask the participants about their legal status in consideration of what happened. Events like this were common that summer, Alfonso later told me.

Most of the focus group participants had experienced some form of pesticide exposure, which ranged from smelling chemical odors, experiencing skin and eye

¹⁴ All names have been changed for anonymity

irritation, vomiting and headaches, and many attributed this to either improper pesticide application or drift from a nearby field. Rarely was anyone given an option to leave work after these incidents. Verónica expressed suspicion about the legality of the kinds of pesticide application she has to perform -

Our heads begin to hurt and our tongues get numb. So, we say that we don't feel good and we want to get away from there, which is the law, which is how it's supposed to be. Then, they tell us, "That spray is not bad," but we are feeling bad...So, I think that in that way, they're breaking the law, which says that we practically have to be completely out of that place [after a drift incident]. And, yet, they're in a rush to get the job done, and that's where they have us, because they need the job to be done.

Lana spoke about a lack of support from employers when she and others have expressed concern about pesticide exposure - "They don't care about our health, because we're the ones who are hurt. That's how they look after their business. They want us to keep working and say the pesticide doesn't hurt us. Yes, it is hurting us." When I asked whether anyone had ever reported these issues to the Department of Pesticide Regulation or their local CAC, no one seemed to know who or what I was referencing and thought that I was speaking about the Labor Commissioner. Training on everything from pesticide handling and application, proper harvesting, and heat safety seemed to be limited at best, or nonexistent at worst. Epifanio mentioned that the last time he received training on harvesting and heat safety was nearly ten years ago -

There's no more training...We went to the company and we told them what we wanted but the company still ignored us. We get there and no one knows what to do. We're talking about 30% of the people didn't know how to harvest tomatoes. They arrived, they went in, and they left the same way...A half an hour later, they were out of there, because they couldn't stand the heat...With the heat, there wasn't any training now that we're under contract. They never said anything

about how much we have to do. There's no respect from any side. The supervisors, the contractors, all they want is money. The company, what it wants is to raise the crops. They don't care about the people, if they die. Unfortunately, it's not just one company, it's all the companies, all ranchers.

Ana and Lana went as far to say that the growers they have worked with knowingly violate the law and do not provide necessary information about pesticides that workers come into contact with daily.

None of the farmworkers I spoke with knew specifically what pesticides they were being exposed to besides sulfur, but many expressed concerns about the long-term effects of exposure to all pesticides. Sulfur is considered a low toxicity pesticide by the EPA, posing very little if any risks to human health.¹⁵ Yet, many participants mentioned serious acute symptoms which they believed were a result of exposure to sulfur, including skin rashes, headaches, and eye irritation. Ana spoke of one particular incident in which she was hospitalized for pneumonia after working with sulfur and was diagnosed with asthma shortly thereafter. It is unclear whether exposure to sulfur caused these illnesses, but regardless of its causal links to Ana's pneumonia and asthma, exposure to sulfur exacerbated what may or may not have been existing health problems brought on by other environmental hazards. Similarly, Marta expressed concerns about a "pesticide to grow the fruit more quickly" that she comes into contact with on a regular basis -

The fruit has to mature so that they can sell that product. They want to get the product out as fast as possible...The rancher simply says, "Spray that poison on the product, because I want the product to go out by tomorrow." They know the chemicals that they're going to apply, but they never tell the workers. The worker, he's the one that takes it, he's already gotten the poison, the pesticide.

¹⁵ U.S. Environmental Protection Agency. May, 1991. Reregistration Eligibility Document Facts: Sulfur. US EPA, Pesticides and Toxic Substances, Washington, DC.

It is unclear whether this particular ripening agent is toxic to human health; ethylene, for example, is a widely used ripening agent that poses few health risks. What Marta was most frustrated by, however, was the lack of transparency about the chemicals workers are required to use. In every instance of exposure, workers had no idea what chemical was causing the harmful effects they experienced. This seems to lead to misunderstandings about which chemicals are in fact very dangerous and which ones may not have harmful effects. As a result, workers overwhelmingly distrust their employers. As Blanca bluntly concluded, “The companies know that they [pesticides] are very poisonous. It’s just that they have a lot of power. They’re interested in selling. They don’t care about our health, the field workers.”

ORGANIZING STRATEGIES

Alliance as resistance

Pesticides are but one piece of a much larger nexus of environmental justice struggles characterizing the San Joaquin Valley. Residents, activists and farmworkers alike are not just concerned about pesticides; poor air and water quality and oil and gas extraction are critical issues in these communities also (Lee et al., 2002; Marquez et al., 2016). In countless everyday encounters, residents commented on widespread illnesses such as cancer, asthma, infertility, diabetes, and chronic pain among their families and extended communities. All attributed this - some partially, others overwhelmingly - to the physical environment. Valerie, my contact at CRPE, regularly mentioned how

“everything is connected here”, referring to overlapping nature of environmental justice struggles across the Valley. To drive this point home, she invited me to a court hearing on a case of oil and gas extraction in a majority monolingual Spanish-speaking community in Kern County. Over 30 resident-activists arrived to offer testimonies about their experiences, the majority of whom had connections to farm-working communities. The case concerned whether drilling in this particular neighborhood could move forward because the oil company did not provide notification in Spanish. Thus, most of this community did not have adequate information or opportunity to contest drilling near their homes. Cases like this are common in Kern county, the nation’s largest oil producing county (Ross, 2015), and but one example of how farm-working communities face multiple environmental injustices simultaneously.¹⁶

Because of the dense interconnectedness of these struggles, grassroots organizing around immigrant and environmental justice is deeply embedded in local rural communities. Most of the activists and residents involved in these spaces are intimately connected to farmworker and immigrant communities through family. Some of the most effective resistance against pesticide exposure comes out of regional and neighborhood coalitions. Angel, an organizer with El Quinto Sol de America, has been at the forefront of pesticide reform efforts in the San Joaquin Valley through his Tulare county-based group Coalition Advocating Pesticide Safety (CAPS). Before this summer, I assumed that the overlap between agricultural and political power in the region would foreclose

¹⁶ California is the third largest oil producing state behind Texas and South Dakota

significant pesticide reforms at the local level. Angel noted, however, that the antiimmigrant hostility characterizing the current political moment has actually created more space for coalition-building between local government and communities -

The political climate has ignited an action-driven atmosphere for a lot of people here...People are pissed off. We have people that probably two years ago wouldn't have joined us, joining us. We have some local representatives that are coming to our CAPS meetings and listening in on these issues. That wouldn't have happened before the Trump era...CAPS has spearheaded a lot of the effort here. I told them [residents] about this idea, this vision, and we stepped it up. Tulare doesn't have a lot in comparison to Fresno and Kern. It's not as big in terms of support network and the resources...we had to do that on our own, and it has worked. It brings things into perspective. It makes us value how we can get things done if we have each other's back.

CAPS exemplifies how community organizing takes place in small rural towns.

After our interview, Angel invited me to stay for a CAPS meeting. About 15 people attended, including small children, teenagers and adults, professionals, students, a Visalia city council member. All but one was Latinx. These were people who maybe one year ago had never participated in any form of political organizing, let alone anything to do with pesticides.

The group met to discuss strategies to push a ban on chlorpyrifos, one of the most widely-used organophosphate pesticides in the world. In 2000 the U.S. Environmental Protection Agency (EPA) determined that chlorpyrifos posed significant and lifelong health risks to children's development and was banned from residential use. More recent studies conducted by Columbia and Berkeley researchers link chlorpyrifos to reduced lung capacity, neurodevelopmental problems, and infertility (Grey and Lawler, 2011),

and during Obama's second term the EPA recommended its full ban. But on March 29, 2017 Scott Pruitt, the new head of the EPA, rejected the recommendation (Lipton, 2017).

In a press announcement Pruitt stated:

We need to provide regulatory certainty to the thousands of American farms that rely on chlorpyrifos, while still protecting human health and the environment. By reversing the previous administration's steps to ban one of the most widely used pesticides in the world, we are returning to using sound science in decisionmaking — rather than predetermined results.

On the same day, Sheryl Kunickis, director of the U.S.D.A. Office of Pest Management Policy, commented, "It means that this important pest management tool will remain available to growers, helping to ensure an abundant and affordable food supply for this nation." Dow Agrosiences, the division that sells chlorpyrifos, praised the ruling as "the right decision for farmers who, in about 100 countries, rely on the effectiveness of chlorpyrifos to protect more than 50 crops." The rejection of the previous EPA leadership's recommendation to ban chlorpyrifos reiterates that chemical and agricultural industry interests - far more than human welfare - are what influence the outcomes of debates over pesticides.

The effects of such decisions are felt most acutely in rural communities across the San Joaquin Valley that overwhelmingly rely on chemical inputs to maintain their agricultural output. The debate over the chlorpyrifos ban exemplifies how protecting human health is often at odds with protecting an increasingly precarious agricultural economy. At the same time, this struggle continues to be characterized by multiple and

creative forms of resistance. In response to the widespread outcry against chlorpyrifos, much of which led by organizations like CRPE and small neighborhood committees like CAPS, DPR is currently reviewing state-level restrictions on chlorpyrifos.

CONCLUSION

Because of the small number of participants I spoke with, determining the actual extent to which immigration legislation bears upon farmworkers reliance on regulatory institutions remains speculative. A grounded account of how undocumented farmworkers navigate local healthcare systems would be necessary. Holmes (2013) describes how the clinical gaze shapes migrants' encounters with the U.S. healthcare system, and notes how physicians in migrant healthcare value their own observations over migrants and unwittingly blame migrants for their suffering. Reporting limitations present an additional barrier. From 2000-2013, the Pesticide Illness Surveillance Program (PISP) identified 1,969 reported illnesses related to pesticide exposure in in Tulare, Fresno and Kern counties (CDPR PISP Query). These numbers, however, offer a conservative estimate of the scope of exposure. Non-irritant symptoms are difficult to measure or track longitudinally, and with high population growth in formerly rural farmland, it is estimated that hundreds of thousands of people are exposed to pesticides annually (Lee, et al., 2002).

Few studies examine rural populations of color in particular even though these communities experience a disproportionate burden of exposure to agricultural chemicals (Marquez et al., 2016). Only approximately 5 percent of all undocumented farmworkers

in the U.S. have health insurance, so physicians would not count incidents of exposure in the first place (Villarejo, 2003). This project would thus benefit from continued research into alternatives reporting channels beyond those offered by regulatory institutions and an exploration of culturally sensitive healthcare options such as Community Health models like *promotores de salud*. Because of the already unpredictable nature of pesticide chemical interaction, it is exceedingly difficult to trace where and when exposure occurs, especially if symptoms of exposure are not acute. Another research direction, then, might explore how toxicity is measured by regulatory institutions, and what incentives private industry might have in the development of these metrics.

The experiences of communities most impacted by pesticide exposure must be understood in relation to a constantly evolving physical environment where chemicals create unpredictable chronic effects *and* the current political moment of escalating hostility toward immigrant and environmental justice claims. This research builds on growing body of scholarship on the intersection of agriculture and environmental justice and contributes to feminist geographic theorizations of space by naming uneven power relations that shape identity and experience across scales. In framing pesticide exposure as intimately-global, I aim to link body to economy and to reveal how the boundaries separating intimate and global scales are at once contested, fluid and imaginary. Most importantly, I aim to show how seemingly unrelated places are in fact connected and constitutive of each other and to take seriously the complex and embodied forms of harm that often go unnoticed by masculinist examinations of globalization and neoliberalism.

Chapter Three: The spatial politics of pesticide buffer zones: coalitional resistance at an agricultural-urban interface

INTRODUCTION

In October 2016, the California Department of Pesticide Regulation (DPR) proposed statewide regulations to prevent the application of drift-prone pesticides within a quarter mile of schools and daycare centers during school hours. Tens of thousands of children - most of whom are children of color - attend schools located within a quarter mile of farms, and many activists and community members argue these proposed buffer zones do not sufficiently protect children from the risks of airborne pesticide drift.¹⁷

Within days of DPR's announcement, protests erupted up and down the state, with some of the largest and most vocal turnouts in small rural communities throughout the Southern San Joaquin Valley. The farming industry had their own frustrations but to an opposite effect, expressing concern that the regulations would compromise profitability by encroaching on productive land. This paper explores how this debate over the appropriate scope of environmental regulations is one that is increasingly typical of regions located at the agricultural/urban interface where farms and neighborhoods meet (Ames, 2002).

Other scholars have explored how agricultural communities deploy scale-based tactics to demand stronger environmental protections from the state (Brown and

¹⁷ Association of Irrigated Residents, July 2015, letter to DPR. Children are more susceptible to the effects of chronic exposure because their organs are still in development and their enzymatic, metabolic, and immune systems provide less protection from environmental toxins. Californians for Pesticide Reform, reference to EPA study, 7

Guthman, 2016; Guthman 2017) and how the state's spatialized approach to risk assessment and risk mitigation works to dismiss claims of environmental injustice (Harrison 2006, 2008, 2011). I contribute to these studies by examining the school buffer zone debate in relation to material and political-economic geographies of ag-urban interfaces. How do the geographies of ag-urban interfaces shape the pesticide regulatory landscape? And relatedly, how do different stakeholders negotiate competing demands that are further exacerbated by these geographies? Over the course of my fieldwork, I found that stakeholders in the debate navigate the political-economic geographies of agurban interfaces in dramatically different ways. Regulators and those representing agricultural industry interests claim to have an "objective" relationship to the law yet simultaneously lament the burden of excessive regulations and the impact these regulations have on growers. Residents and activists, in response to an entrenched - albeit unspoken - regulatory and industry alliance, must engage in multi-scalar and coalitionbased organizing to demand stronger environmental protections from the state (Leitner et al. 2007).

I argue that scholarly engagement in environmental justice struggles must take into account the material geographies engendered by ag-urban interfaces because these spaces are contoured by vastly different priorities and desires. Unpredictable chemical interactions within pesticides create exposure-effects that might be immediate and highly visible, or conversely may manifest gradually over the long term. These forces beyond human control - from chemical composition, weather, to the physical landscape itself - complicate how people may hold farms accountable for the risks of exposure and shape

the conditions of possibility for stronger environmental protections. Moreover, in a region whose agricultural abundance is dependent on heavy chemical-inputs and a lowwage, immigrant labor force, chronic pesticide exposure among the rural poor has become a naturalized and almost necessary effect of the San Joaquin Valley's staggering agricultural economy.

During June and July 2017, I spent six weeks conducting fieldwork on pesticide regulation and enforcement across several Southern San Joaquin Valley counties including Merced, Madera, Fresno, Tulare, and Kern. Before arriving, I approached The Center for Race, Poverty, and the Environment (CRPE), an environmental justice organization based in Kern County, to learn about their pesticide organizing efforts and directed my research in line with these political commitments. I learned that pesticide exposure is but one piece of a much larger nexus of environmental justice struggles facing this region, and soon it became increasingly clear that unrelated issues were quite interconnected.¹⁸ The communities I spent time in understandably want larger buffer zones around schools because children are most susceptible to the developmental impacts of pesticide exposure. Yet the space between everyday chemical odors and acute pesticide exposure is expansive and shifting, making it notoriously difficult to establish causal links between chemicals and illness. Residents thus are well aware that proximity to agricultural production results in forms of chronic exposure that are difficult to address through official state reporting mechanisms.¹⁹

¹⁸ Counties include Stanislaus, San Joaquin, Merced, Madera, Fresno, Tulare, Kings, and Kern.

¹⁹ California Environmental Health Tracking Program, 2

In section one, I situate today's debate over school buffer zones within longstanding anxieties over urbanization and farmland preservation throughout California. My objective is to frame conflicts over the appropriate scope of regulatory oversight in relation to the physical, political and economic geographies of ag-urban interfaces. In short, I center the materiality of landscape and the ways that land contours political possibility. In section two, I examine spatial and biopolitical framings of environmental justice struggles, drawing primarily on the politics of scale literature. I then explain how my analysis of school buffer zones and ag-urban interfaces both draws on and departs from these theorizations. In section three I briefly overview the current regulatory landscape surrounding school buffer zones to help contextualize stakeholders positions within the debate. In section four I present my ethnographic findings from interviews with resident-activists, nonprofit staff, and state and county-level regulators. I conclude with reflections on the limitations of my findings and offer suggestions for new research directions.

Locating ag-urban interfaces

No sector of the Valley's economy has a greater stake in how – and where – communities grow than agriculture. Land is the foundation of farming and ranching, and every acre of agricultural land converted to urban use is an acre that will never again sustain food production.

- American Farmland Trust, 2013

Anxieties over urbanization and farmland preservation in California are not new. Since the early 1980s, transformation of agricultural to urban land use has increased

across California - in the last 25 years alone over one million acres of what is considered prime farmland have been developed (AFT, 2013; Schiffman, 1982). According to a 2013 American Farmland Trust (AFT) study, high-quality farmland acreage in the San Joaquin Valley declined by 443,000 acres between 1990 and 2008, and of this 100,000 acres were converted permanently to urban uses. AFT projects that the region will lose an additional 500,000 acres of land to development by 2050 and more than 300,000 acres of it will have been highly productive irrigated cropland. While controversies over urbanization, population growth, and farmland preservation are long-standing, in recent years these conflicts have sharpened. After emerging from a seven-year drought, the farming industry currently is facing a labor shortage of crisis-like proportions as U.S. citizens consistently refuse farm work, even with promises of wages exceeding the state minimum wage and competitive benefits like healthcare (Kitroeff and Mohan, 2017). The majority of agricultural labor is also still performed by a foreign-born and undocumented workforce (Jezdimirovic, 2017), and despite technological automation and developments in agricultural robotics, the vast majority of harvesting remains hand-and-knife (Mohan 2017). California farming, in short, is in the midst of a dramatic transformation, whose future as the nation's leader in agricultural production is becoming more uncertain.

Recent news coverage on ag/urban interfaces has focused largely on the coastal strawberry growing regions of central California (Rubin, 2017). The city of Salinas, for example, recently initiated an economic development plan that projects residential and

commercial growth by over 30% in the next several years, generating concerns among farmers and smart-growth advocates alike about the effects of rapid urbanization.

Developers claim that land will be more profitable if transitioned out of farming, whereas growers fear that razing agricultural land will negatively impact what is already the biggest industry in the region. In the center of this conflict are residents that regularly experience chronic pesticide exposure as a result of drift from nearby farms. In August 2017, several residents of a South Salinas neighborhood complained about a noxious chemical smell wafting through the air. While the Assistant Agricultural Commissioner found no evidence of a violation, pesticide drift incidents like this are common in agurban interfaces across California. As commercial and residential developments increasingly are built closer to farms, I believe these sorts of complaints likely will grow as well.

Conflicts over school buffer zone regulations have taken on a similar dynamic, with protests erupting all over the San Joaquin Valley in the year since DPR released its proposal. In November 2016 - less than a month after DPR made its announcement - around 75 parents, teachers, and advocates in Tulare County marched in protest of draft regulations they believe insufficiently protect California school children and staff from pesticide exposure, particularly for Latino schoolchildren who are twice as likely as White children to attend the most impacted schools.²⁰ Of Tulare's 194 schools, 123 (63%) are located next to farms that spray pesticides of public health concern.²¹ In Fresno, the next county over, farmers believe they are unfairly targeted because schools

²⁰ Our Valley Our Voice, <https://www.ourvalleyvoice.com/2016/12/01/tulare-protest-held-proposedpesticide-regulations/>

²¹ California Environmental Health Tracking Program, 17

tend to build campuses on cheaper land at the periphery of towns where they have been farming for several generations (Mayes, 2016; Ames, 2002). In California, existing regulations protect farmers' right to apply pesticides on farm land adjacent to schools if they were there first, which leads to the sort of "community antagonism" characteristic of the current debate over school buffer zones (Ames, 399).

Ames (2002) traces the shift in challenges associated with pesticides over the course of the U.S. and California regulatory history. Early regulatory efforts targeted the most severe forms of illnesses related to pesticide exposure, which at the time were more commonplace due to a lack of awareness about the effects of pesticides, personal safety equipment and regulatory precedent. While there are less risks from a toxicological and public health perspective, there are more "social and political" challenges surrounding pesticide exposure -

One emerging issue is that protecting workers and the public alike has expanded from considerations of just acute effects and is increasingly becoming defined as protection from chronic effects, reproductive effects, or other conditions that may be difficult to define and difficult to measure. Another change is that public responses to pesticide concerns have become more focused on protecting school children, community residents, and vulnerable subpopulations from pesticides. There has been greater public outcry and the development of activist groups focused on these new challenges (397-399).

Guthman and Mansfield (2012) trace the growing concern about the human health effects of 'xenobiotic' chemicals like those found in pesticides to the development of a new scientific paradigm called environmental epigenetics. In revealing how changes in the cellular environment can reshape developmental pathways and that these changes can be passed to future generations, epigenetics has opened up new insights into nature/society

and spatial traditions in both academic research and the policy priorities of environmental justice organizations.

Organizations active in these debates, from large international organizations such as the Pesticide Action Network to local grassroots organizations like El Quinto Sol de America of Tulare County, urge policymakers to provide support and training for farmers to transition to less chemically-intensive farming methods. Whether and how the state makes these investments in regions like the San Joaquin Valley is dependent on a complex set of political and economic factors that are generally overseen at the county level. Irving Schiffman observed nearly 40 years ago that “[the] burden of protecting California’s farmland lies with its local governments, many of whom lack the resources and expertise sufficient to meet the responsibility, and all of whom must confront the preservation challenge in a charged political environment” (622). At the time, concerns over farmland preservation were mostly concentrated in regions that have long since urbanized, such as the greater Los Angeles metropolitan area and the Santa Clara Valley (now Silicon Valley). Schiffman predicted that these conflicts would soon spill “into the heart of largely agricultural areas” if the trend toward rural population growth continued - and it has. The San Joaquin Valley’s population - currently over 4 million - is also expected to increase by another 89% in the next 40 years, with some of the greatest rates of growth in counties that also experience some of the highest pesticide application around schools.

California agriculture has been since its inception a corporate capitalist enterprise - one that circulates capital into the proliferation of labor-intensive crops, develops new markets for land and labor, and accelerates the industrialization of agricultural inputs like chemicals, machinery and processing facilities (Walker, 2004). As the San Joaquin Valley's population expands in the coming decades, how the region's agricultural economy will negotiate this growth - and whether it will do so in a way that is environmentally sustainable - remains to be seen.

THEORETICAL FRAMING

Spatial fixes to environmental injustice

Spatial conceptualizations of risk have the capacity to either minimize or expand regulatory responsibility, depending on how scale-based discourse is deployed and by whom. Beginnings in the early 1990s, geographers increasingly examined environmental justice struggles and organizing tactics in relation to a "politics of scale" (Leitner et al., 2007). This scholarship emphasizes the social construction of scale (Marston, 2000), how the spatialization of power and ideology produce uneven capitalist development (Swyngedouw, 1997, 2003), and how scale shapes political struggle (Harrison 2006, 2008, 2011; Kurtz 2003; Leitner et al., 2000; Towers, 2000). Delaney and Leitner (1997, 97) note, "Scale is not as easily objectified as two-dimensional territorial space...Likewise scale exists not simply in the eye or political consciousness of the beholder. Where scale emerges is in the fusion of ideologies and practices". In her study on regulatory neglect and pesticide drift in the Central Valley, for example, Jill Harrison argues that agencies

like the Department of Pesticide Regulation (DPR) utilize ideas of scale to frame pesticide drift as isolated “accidents” rather than a systemic problem (Harrison, 2011). Residents also invoke scale, but for very different purposes. By “pushing up” the scale of pesticide drift from county to state-level jurisdiction and characterizing it as air pollution, residents were able to build coalitions with more politically powerful groups like Californians for Pesticide Reform and frame the problem as a statewide concern (Harrison, 2006, 523). Geographic scale, then, must be understood as both socially constructed and shaped by multiple claims to power.

Departing slightly from this framing, Sandy Brown and Julie Guthman’s biopolitical reading of risk management offers a productive critique of spatially-driven fixes at the roots of fumigant mitigation proposals by the CA Environmental Protection Agency (CalEPA).²² They found that mitigation technologies such as buffer zones between treated fields and nearby residential and commercial areas are not designed to eliminate the use of toxic chemicals but instead to minimize exposure in accordance with appropriate threshold levels, overwhelmingly protecting nearby residents and school children rather than farmworkers. Brown and Guthman see parallels between these mitigation measures and technologies of security, which “balance the chances of harm against the need to ensure the flow of commerce” (463). Farmworkers are essential to California’s agricultural economy, occupying a space somewhere between a population to

²² The fumigant in question, chloropicrin, has become the most widely used soil fumigant in the strawberry industry since the mandatory phase-out of methyl bromide under the Montreal Protocol for Substances Depleting the Ozone Layer.

be protected and one that is figuratively “let to die” insofar as they are seen as disposable (470). During public hearings over the mitigation proposals, for example, strawberry growers framed soil fumigants as necessary for maintaining both abundant food and employment for farmworkers. And while labor groups capitulated to concerns over community safety, they ultimately were against endangering the strawberry industry as well. Absent from these hearings, unsurprisingly, was any consideration of the wellbeing of farmworkers, who, in spite of being the group most susceptible to exposure and thereby most vulnerable to the fumigant’s effects, were entirely ignored.

Nonhuman agency and multispatiality

Leitner et al. (2007) argue that the politics of scale literature tends to sideline how others spatialities such as place, networks, positionality, and mobility enter into "contentious politics", which they define as "[Concerted], counter-hegemonic social and political action, in which differently positioned participants come together to challenge dominant systems of authority, in order to promote and enact alternative imaginaries" (157). Contentious politics are multivalent and co-implicated by numerous spatialities, making them irreducible to a master category like scale. Unlike the abstract category of scale, these other spatialities ground contentious politics in both individual bodies and communities that may remain in place or move, depending on the nature of the struggle or strategy of resistance. The *materiality* of contentious politics, in other words, impacts the distribution of agency across the more-than-human world. My research draws on this particular critique to reveal how marginalized rural communities deploy multi-spatial discourse and political strategies to protect themselves from environmental harm. I also

pay close attention to the more-than-human forces engendered by ag-urban interfaces and how this contested boundary between rural and urban space creates complex tensions between the agricultural industry, rural residents, and the state regulatory apparatus.

Understanding environmental injustice and the ongoing forms of resistance to it exclusively in terms of scale is insufficient. The contentious politics that form this debate are constituted, as Leitner et al. (2007) suggest, by multiple spatialities beyond scale. Places, they argue, have a distinct materiality that "regulates and mediates social relations and daily routines within a place, and thus is imbued with power" and thus "also shapes the conditions of possibility of contention (161). The San Joaquin Valley is at once agriculturally rich yet marked by widespread poverty and environmental degradation; politically conservative yet simultaneously a site of vibrant grassroots organizing. It is, in short, a place of contradictions and possibility. Like place, networks and positionality are other important spatialities that figure into the contentious politics of environmental justice organizing in this region. Alternative networks, such as non-state reporting mechanisms, have been critical to demanding justice for pesticide drift incidents. The positionality of different subjects in these debates - from farm workers, residents, regulatory allies, nonprofit staff, and community organizers, among others - also matters tremendously. Leitner et al. even consider the positionality of nonhuman actors in these debates, which "must also always be at stake in contentious politics" (164).

Conceptions of nonhuman agency, as explained by concepts like assemblage (Bennett, 2005), are useful in thinking about what forms of justice are at once effective, ethical and politically possible within the context of environmental uncertainty in the San

Joaquin Valley. Bennett (2005) defines an assemblage as a grouping of individual human and nonhuman actors whose connection to each other, and whose agency exerted on the whole, are contingent and relational. These assemblages may constitute powerful human actors like pesticide manufacturers, regulatory leadership, local officials, legislators, and growers; to marginalized communities of farm workers, neighborhood residents, and school children; to nonhuman actors like pesticides, machinery, crops, soil and various other climate-induced environmental contingencies.

Pesticide drift is a particularly complex form of exposure to track, measure and therefore address. Because of the already unpredictable nature of pesticide chemical interaction, it is exceedingly difficult to trace where and when exposure occurs. Exposure might be immediate and highly visible, or conversely it might manifest over a long period of time in the form of chronic illnesses. Tracing culpability in instances of pesticide exposure is especially complicated when factoring in nonhuman forces like the chemical composition, climate, and physical landscape. Ahmed (2014), for example, draws parallels between poisoning and contemporary forms of ecological violence to demonstrate how chemicals complicate causality, liability, and redress. Traditional forms of criminal justice, or regulatory oversight in the case of pesticide exposure, then, do not readily or intuitively apply to such cases. Multiple culprits for environmental injustice emerge in communities that experience heavy pesticide application at ag-urban interfaces. This is not to say that nonhuman agents like climate and chemicals are equally responsible as humans comprising the regulatory apparatus, but to illustrate how multiple forces converge to produce different effects.

REGULATORY LANDSCAPE

According to DPR, the size and diversity of California’s agricultural industry, and the state’s rapid urbanization, “require a more complex partnership between state and local pesticide regulatory authorities than anywhere else in the nation” (CDPR 2016). California is the only state that operates a permitting system for use of highly hazardous pesticides, and one of few states that have mechanisms for enforcing pesticide laws. Community organizing for safer pesticide use at schools dates back to the late 90s, culminating in the passage of The Healthy Schools Act (HSA) in 2000. HSA is a "right-to-know" law that provides parents and staff information about pesticide use at public schools and child care facilities and encourages the adoption of integrated pest management (IPM).²³ Among its many requirements are that schools must identify an IPM coordinator, create an IPM plan, provide annual written notification of pesticide products expected to be applied during the school year, create a registry for parents and staff wishing to be notified, post warning signs about when and where pesticides will be applied, keep publicly available records of pesticide use for at least four years, report all pesticide use applied by staff at school, and to complete a DPR-approved HSA training annually.

In short, these requirements are extensive and rigorous, and to some, onerous. To be clear, the HSA does not address pesticide use *near* schools, which is the subject of the

²³ CDPR http://www.cdpr.ca.gov/docs/pestmgt/pubs/hsa_factsheet.pdf;
<http://www.cdpr.ca.gov/docs/pestmgt/pubs/healthyschoolsipm.pdf>

most recent regulations being debated. In order to make sense of either side of the school buffer zone debate, it is important to consider how its many stakeholders feel about existing regulations like HSA. While I cannot speak conclusively about teacher and staff perceptions of the proposed school buffer zone regulations, my sense from anecdotal conversations with activists and regulators alike is that the requirements are burdensome and beyond the scope of what most schools can take on. For this reason, activists feel like farms should move away from restricted-use pesticide application entirely, while those representing agricultural interests believe that these regulations are untenable in and of themselves.

Much of the organizing efforts I witnessed over the summer were in response to a 2014 California Environmental Health Tracking Program study on the pesticide application near public schools. It looked specifically at pesticides of "public health concern", including carcinogens, reproductive and developmental toxicants, cholinesterase inhibitors, toxic air contaminants, fumigants, and priority pesticides for assessment and monitoring. Of the 2,511 public schools in the top 15 counties by agricultural pesticide use in California, researchers found that 36% (899) had applications of pesticide with potential to cause adverse health effects within ¼ mile of the school boundary.²⁴ The study also found that Hispanic students were overrepresented in schools with more pesticide use nearby compared to other ethnic and racial groups. The sheer range of quantities and types of pesticides applied at schools is significant, from hundreds

²⁴ California Environmental Health Tracking Program, 38

to several thousands of pounds. The CAC staff I spoke with often commented about widespread misunderstanding about what the weight of pesticide application actually means on the ground. The range is huge, and in their words, very widely dispersed and diluted. In other words, what seems like a huge amount to someone without much knowledge of farming is actually not a significant quantity.

Because the CEHTP study methodology did not measure schoolchildren's exposures to pesticides, the study results cannot be used to predict the possible health impacts of pesticide application. Researchers note that other information like chemical decay, transport, and routes to exposure is necessary to begin understanding the links between application and exposure over time. The source of many people's complaints about pesticides near schools begins with chemical odors, which technically are not – at least according to CAC scientists – sufficient evidence of exposure. In its Initial Statement of Reasons for the proposed school buffer zone regulation, DPR references documentation of acute illnesses due to pesticide drift in California and elsewhere (Lee, et al. 2011), but emphasized that the majority of illnesses in these cases resulted from applications that did not comply with regulatory requirements.²⁵ And while DPR acknowledged that “the number of illnesses may be underreported or drift to schools may not result in acute illnesses”, much of this document minimizes the gravity of chronic exposure to pesticides and contests the necessity of larger buffer zones (7).

²⁵ DPR 2. DPR's pesticide illness database contains records of 34 cases of illness due to 5 episodes of drift at schools from 2005-2014. These illnesses occurred before EPA established new restrictions for fumigants in 2012 and before DPR implemented stronger restrictions on pesticides to mitigate drift exposure during 2012 and 2015.

DPR resolutely states, in fact, that the CEHTP study and a UC Davis study that links pesticide with autism do not provide sufficient scientific justification for 1-mile buffer zones, primarily because it relied exclusively on pesticide *use* data, and did not track the scope and nature of pesticide *exposure* (7). DPR also expressed concern about the studies CEHTP used to support their policy demands, which they argued only supported a correlative relationship between prenatal pesticide exposure and neurological effects, and whose sample sizes were too small to make conclusive claims about a significant correlation. The American Civil Liberties Union (ACLU), in partnership with the local environmental justice organization El Quinto Sol de America, directly challenged DPR's suspicion of a one-mile buffer zone margin of safety, referencing the same studies DPR deemed inconclusive in its Initial Statement²⁶.

In sum, DPR and ACLA/EQS interpret the correlative links between pesticides and ill health in vastly different ways. Because pesticides are produced specifically for their toxicity and are purposefully introduced into the environment, DPR's regulatory approach to risk assessment and management focus largely on mitigating exposure to, rather than outright banning, certain pesticides and avenues to exposure²⁷. This cost and benefits logic encourages reactive versus proactive solutions that favor agriculture and

²⁶ Julia Barrett, "Getting the Drift: Methyl Bromide Application and Adverse Birth Outcomes in an Agricultural Area" Environmental Health Perspectives, June 1, 2013, *available at* <http://ehp.niehs.nih.gov/121-a198/>; National Academy of Sciences "Pesticides in the Diets of Infants and Children 3 -7" (1993) at 309. Referenced in American Civil Liberties Union. "Public Comment Regarding DPR Regulation No. 16-004 for Pesticide Use Near School sites," December 7, 2016.

²⁷ California Department of Pesticide Regulation, "Monitoring protects us and our environment," Pesticide Info: What You Should Know About Pesticides, <http://www.cdpr.ca.gov/docs/dept/factshts/moni2.pdf>, (accessed December 12, 2017).

pesticide manufacturing industries and opens up to interpretation the appropriate thresholds of exposure to toxicity.

ETHNOGRAPHIC FINDINGS

I'm going to be a better farmer and you're going to be a better Pest Control Advisory if we can get actively engaged and make sure that they don't take the tools away from us with ridiculous regulations that are not based on science, but just innuendo and passion. - Paul Wenger, President of the California Farm Bureau Federation

Conflicting relationships to regulation

At the root of debates over school buffer zones are, on the one hand, conflicting notions about the appropriate scope of regulatory oversight, and on the other, concerns about uneven regulatory enforcement in regions whose economies and political systems are dominated by agricultural interests. On its face, a buffer zone is a straightforward geographic fix for communities next to chemically intensive agriculture.²⁸ But the debate over buffer zones extends far beyond disagreements over spatial extent (¼ mile versus 1 mile, for example). How a buffer zone's distance is determined, for example, is, of course, a complex scientific process, but also one that is influenced by the interests of the chemical manufacturing industry, whose influence on pesticide regulations are undeniable (Harrison, 2011). Yet, state employees with close connections to agricultural institutions like CACs or local Farm Bureaus claimed to not have strong opinions about

²⁸ A buffer zone is an area established around the perimeter of application zone, as determined by the EPA and the CA Department of Pesticide Regulation. Buffer zone distances are based on several factors such as the anticipated protection of human health, referred to as a percentile of human protection; the greater concentration of human bodies, the stricter the protections. If a field is located in close proximity to a school, neighborhood or commercial district, the regulatory constraints are much more consequential than if it was located somewhere more remote and undeveloped (Goodhue et al. 2015).

the regulations they were tasked with enforcing, nor did they seem particularly moved by the effects of pesticides on community members and farmworkers.

A phrase I heard repeatedly in my conversations with regulators was “we just enforce the law”. This supposedly objective relationship to regulation, in my view, is a reflection of stakeholders’ political-economic position in ag-urban interfaces. Diane, of the Tulare CAC office, was adamant that she did not form opinions about growers, regardless of how much money they have or how far into debt they are²⁹. Everyone, under her jurisdiction, is treated the same, even though in a previous phone conversation she exclaimed how farmers’ profits would be devastated by the loss of productive land. Similarly, John, a high-level employee at a county-level Farm Bureau, spoke to me about the wide sense of frustration among growers about DPR’s proposed regulations.³⁰ He could barely make sense of demands for one-mile buffer zones when growers already felt attacked by existing regulations that they felt went too far.

While my interpretations are only speculative, I believe these comments reflect a tacit allegiance to grower priorities. Harrison (2011) describes this as a “devolved governance” approach, arguing that political elites with regulatory oversight are “captured” by industry, especially in regions like the Central Valley where a large percentage of the population is politically disenfranchised and whose economy is overwhelmingly beholden to agriculture. A primary, albeit somewhat unspoken, point of contention between regulators and activists thus surrounded the economic consequences

²⁹ Name changed for anonymity

³⁰ Name changed for anonymity

of encroaching on productive farmland through the establishment of buffer zones. These economic consequences, do not only affect growers but an entire region whose agricultural production is dependent on heavy chemical inputs.

Land values in CA, furthermore, are notoriously high, and most growers lease rather than own the land they cultivate. The expectation is to grow on the same parcel of land year after year, which requires more chemical inputs as the quality degrades over time. While her work deals with a different rural geography and economy, Guthman's (2017) work on soil fumigants in the California Central Coast strawberry industry is informative. She writes about how exploitative land-leasing arrangements put growers in an impossible situation of growing affordable, aesthetically pleasing fruit on land with poor soil conditions; conditions that further necessitate the use of dangerous agrichemicals that compromise human life. This is not to say that growers are in any way absolved of the responsibility to ensure their workers' safety, but instead to draw attention to the larger political-economic forces and environmental conditions that often exacerbate pesticide use at ag-urban interfaces.

In addition to this tension between economic priorities and environmental safety, I observed community concerns about the efficacy of the proposed buffer zones and whether CACs could be relied on to enforce the regulations, to begin with. While regulators claimed to be objective about the regulations they enforce, they were less hesitant to express, rather candidly, their frustration about the *number* of regulations they

were tasked with. Jacob³¹, an employee with the Fresno CAC Pest Control Operations division, spoke about the challenges of enforcing an extraordinary number of regulations and managing frequent changes to the state and county code. During our interview, Jacob pointed to an enormous binder of state and county level pesticide regulations, remarking how difficult it is to stay on top of sudden and often very subtle code modifications. Later Jacob alluded that many of the growers he has worked with would prefer to move away from such intensive pesticide use - particularly organophosphates and fumigants, widely considered the most toxic pesticide varieties - precisely because they are so heavily regulated by the state.

Diane expressed somewhat similar frustrations over what she characterized as misperceptions about CAC authority, namely that CACs can make up regulations as they go. While she did not explicitly reference feeling overburdened, Diana did mention that the one-mile buffer zones demanded by advocates were unnecessarily far-reaching and that a notification system would generate an extraordinary amount of paperwork about pesticide application that ultimately would not put people at risk for exposure, according to DPR's assessments. In other words, transparency initiatives, such as establishing reporting and notification mechanisms, would lead to inefficient regulatory oversight. More importantly, she claimed, CACs would be taken away from the more pressing work of investigating pesticide illnesses and injuries.

³¹ Name changed for anonymity

While none of the regulators I spoke with ever admitted to favoring the needs and interests of growers, residents and activists expressed the exact opposite. Activists I spoke with argued that many, if not most CACs in the San Joaquin Valley devote the vast majority of their time to pesticide registration rather than inspections of labor conditions or safe pesticide use. In other words, CACs are not necessarily overburdened by the forms of regulatory oversight advocates are demanding in the first place. Margaret, an environmental scientist with the Pesticide Action Network (PAN), was suspicious of the supposedly negative economic effects that buffer zones would have on farming profits -

Author: What do you think of the argument that buffer zones would negatively impact a grower's operation?

Margaret: Well, that's what growers always say, but there's actually very little data about what would happen with the buffer zones. That's an area of research where it would be wonderful to have someone dedicate some time to. This has come up not just because of this regulation, but forever, and one of the biggest examples is the fumigants. There are buffer zones required for the application of fumigants. Growers have historically, repeatedly assumed that a buffer zone means that there is total loss of production in that buffer zone. No data, zero data - they just say buffer zone means loss of production, which is crazy. So at any rate, having the sort of agricultural economics analysis of what buffer zone production really is, would be essential.

Anne Katten, the Pesticide & Worker Safety Director at California Rural Legal

Assistance, felt similarly about the possibilities engendered by buffer zones -

It's sort of an opportunity zone to try to work on using pesticide alternatives and less toxic and drift-prone methods. The proposal as it is written now, it's just a ¼ mile buffer that addresses more drift prone methods...and the 6am-6pm school day restriction is not strong enough. As you probably know, we're advocating for a mile. So there's quite a bit of leeway there for what growers can do. In some counties, they've already had restrictions about using restricted pesticides during those times, sometimes even longer time periods.

These women firmly believed that growers could transition that land with more agroecological production methods with education and training support from the state and through partnerships with deeply and locally embedded community organizations like El Quinto Sol - how economically feasible or politically possible that would be, however, remains uncertain. Both Anne and Margaret, who work respectively from Sacramento and Oakland, CA, are by most accounts geographically far removed from the Southern San Joaquin Valley. While they and the organizations they represent have strong local connections to the communities engaging in these debates - such as El Quinto Sol (EQS) and the Center for Race, Poverty and the Environment (CRPE), among others - what they envision as politically and economically possible in these counties seems to be shaped by this distance.

Coalition-building as resistance

Community organizing around school buffer zones extends from long history of resistance to environmental racism in the San Joaquin Valley. While the federal government has been regulating pesticides since the 1940s, of tantamount concern was the protection of plant and animal life, rather than the prevention of exposure among farmworkers. Similarly, the early mainstream environmentalist movement prioritized conservation over the protection of farmworkers. The United Farm Workers of America (UFWOC), whose political organizing dates back to the late 1960s, initiated what would later be characterized as a nascent environmental justice movement (Pulido, 1998).

Pulido (1998) writes -

They [environmentalists] were incapable of an oppositional politics that would allow them to make the connections between agribusiness, the state, environmental degradation, and highly-exploited workers. That they could not do so was partly a reflection of who they were (virtually all white, college-educated and largely male), where they lived, and a limited political consciousness. For farmworkers, their take on pesticides was radically different, as it was informed by their working-class status and subordinated position within a racialized division of labor.

Parallels remain between these early UFWOC organizing priorities and those of grassroots organizations like CRPE and EQS today. In the nearly 50 years since UFWOC unionized, farmworkers and rural communities of color remain sidelined by policy decisions around safe pesticide use.

Considering, on one hand, the exclusion of farmworkers from the environmentalist agenda, and on the other, the close relationship between local government and farming, it makes sense that the most effective resistance against pesticide exposure often comes out of regional and neighborhood coalitions. Angel, an organizer with EQS, has been at the forefront of pesticide reform efforts in the San Joaquin Valley through his Tulare County-based group Coalition Advocating Pesticide Safety (CAPS). One of the greatest challenges he faces as an organizer is growerinfluence on county politics -

You go to the city councils and often will see that people are farmers themselves, making decisions on issues like this (school buffer zones). You go to school boards, same thing. You go to the Board of Supervisors, same thing. Everything is just so intertwined. It's hard to address this issue here, given that people already have ties to farming. For example, we got an endorsement for the Healthy Kids campaign from a school board. They supported the ¼ mile buffer zone around schools. This was before the ¼ mile school buffer zones were at play at the state level, about two years ago. The school board endorsed that and I was surprised, to be honest. Shortly after that endorsement, we received a letter of retraction

outlining how there was a miscommunication, a misunderstanding. I met with (the contact at the school board) and she said, "Angel, I really can't do much because it's going to make a lot of people mad."

This level of overlap is typical in ag-urban interfaces, where agriculture and its peripheral industries comprise a significant portion of the local economy. Nayamin, the Director of the Central California Environmental Justice Network (CCEJN), made similar observations when I asked her about CCEJN's relationship with local government -

Unfortunately it's not that great, especially at the local level for various reasons. Many of the Board of Supervisors are connected to the same industry, they are farmers themselves. They're dairy men, or farmers, or have a close connection to these industries. These same people are paying for their campaigns.

Nayamin later noted that CCEJN's strongest political allies are Senators and Assembly members outside of the San Joaquin Valley. Through these conversations, it became evident that coalition-building is an essential organizing strategy among environmental justice activists all over the Central Valley.

After our interview, Angel invited me to stay for a CAPS meeting - about 15 people attended, including small children, teenagers and adults, professionals, students, and a Visalia city council member. All but one participant was Latinx. That evening, the group met to discuss strategies for negotiating wider buffer zones with the Tulare County CAC, with whom they historically had a tense relationship, as well as state-level strategies to push a ban on chlorpyrifos, one of the most widely-used organophosphate pesticides in the world. CAPS exemplifies how community organizing takes place in small rural towns, where maybe one year ago these same people had never participated in any form of political organizing, let alone anything to do with pesticides, and were now

organizing across local and state scales. Because of the dense interconnectedness of these struggles, environmental justice organizing - particularly around school buffer zones - is deeply embedded in local rural communities and also leverages strategic partnerships with larger, well-funded organizations to bring visibility to their struggles.

CONCLUSION

The conclusions I draw in this study are speculative due to some important methodological limitations. I spent only six weeks in the field, which precluded more intimate relationships with key informants. My research certainly would have benefitted from extended time to develop relationships with activists and community leaders who could introduce me to affected residents involved in these debates. This speaks to another limitation created by a small sample size. I draw on ten interviews and participant observation at several community events for this paper, so my observations from these encounters are of course only provisionally representative. Finally, I was unable to speak with key informants such as parents whose children attend schools by buffer zones and DPR scientists who recommended the ¼ mile buffer zone for the regulations in question. Future research would benefit by collaborating with community and regional planners, who could offer insights on zoning that determines how new residential and commercial property is developed, and by working with County Agriculture Commissioner offices to develop accessible maps of pesticide application that include data on the types of pesticides being used, exposure risks, and long-term effects of exposure. With regard to policy, I would recommend that regulatory institutions like DPR and local CACs find

more ways to involve community members in their affairs, perhaps by developing a community outreach team.³²

Residents, activists and farmworkers alike are not just concerned about pesticides; poor air and water quality and proximity oil and gas extraction are critical issues in these communities also. Nayamin of the Central California Environmental Justice Network often brought up the region's dangerous dependency on agriculture and other forms of resource extraction and observed how this dependency generates a whole host of interconnected environmental justice struggles. For that reason, she explained, "We are very purposeful about how we work with certain groups and where. We have a lot of commonalities, and we also have a lot of special circumstances". In Kern County, there is extensive organizing around oil extraction and fracking, whereas in Tulare County there is more work related to mega-dairies. In Stanislaus County, activists prioritize air quality concerns generated by massive incinerators. Fresno and Merced County are currently facing hospital and doctor shortages, which in turn push residents to seek specialized care long distances from home. Pesticides, then, are but one piece of a much larger nexus of environmental justice struggles characterizing the San Joaquin Valley.

In countless everyday encounters, residents spoke to me about widespread illnesses such as cancer, asthma, autism, diabetes, and chronic pain among their families and extended communities. All attributed widespread poor health - some partially, others

³² DPR currently employs one pesticide safety outreach worker who is responsible for performing outreach across the entire state of California.

overwhelmingly - to a constantly evolving physical environment where pesticides and other environmental toxicities create unpredictable chronic effects. As Jill Harrison (2011) notes in her work on pesticide drift in the Central Valley, “as egregious as the big incidents are, activists view them as unfolding on a landscape of less dramatic but pervasive agricultural chemical contamination and regulatory neglect” (8).

Understandably, activists emphasized the overlapping nature of environmental justice struggles across the Valley. Regulatory institutions, nonprofit organizations, and affected communities each have their own, and at times conflicting, perceptions about geographic scale and toxicity thresholds.

Because poor rural communities live near sites of intensive agricultural production, they in many ways subsidize the nation’s food supply through their disproportionate exposure to pesticides and other forms of environmental harm. For these reasons, my hope is that this study will contribute to scholarship on environmental justice organizing in rural communities and will hopefully bring more attention to the San Joaquin Valley, a sorely-understudied region of the United States despite being one of the most important agricultural regions in the nation, if not the world.

Chapter Four: Conclusion

In one of the most memorable conversations I had during my fieldwork, John, the county-level Farm Bureau employee I briefly spoke about in Chapter Three, shared that he has a young son with autism and went on to tell me about a tense interaction he had with the family's pediatrician not long before we met. During a routine medical appointment, the doctor expressed horror about what she believed were the widespread effects of pesticides in her community, she though did not directly connect chemical use with John's son's autism. What she said clearly struck a chord, to which John immediately snapped back –

The drug that you recommend is made by the same company that the pesticides are made by. When a client leaves, don't you use a pesticide to clean the room? Don't you use an aerosol? Are *your* worker wearing respirators? And the residuals left on the counter, does it cause any irritation in your workers? Is it organic? Don't damn me about my chemicals when you yourself are using them.

I cannot say with certainty why John shared this personal story with me, but I suspect he felt prompted by our previous conversation about the chronic versus acute impacts of pesticide exposure and their long-term environmental impacts. A couple weeks later, John took me on a tour of some farms he works with. As he drove me back to where my car was parked a few miles away he brought up his son again, this time expressing frustration with the way teachers do not sufficiently accommodate his special needs. It would be a stretch to draw firm connections between John's son's autism and his proximity to pesticide application at home, but there is an uncanny and somber irony to this story. According to a study conducted by the University of California MIND

Institute, pregnant women who live in close proximity to organophosphate pesticide application experienced a 60% increased likelihood for having children with autism spectrum disorder (Shelton et al., 2014). Whether John's son's autism has anything to do with pesticide application is of course unknown, but it does demonstrate – albeit in an abstract way – that even people who advocate on behalf of the agricultural industry do not necessarily exist beyond the environmental risks associated with pesticide application. This encounter succinctly evokes the tension that exists between environmental health and safety and the agricultural economy.

Future research directions

In the two previous chapters, I reflect potential gaps in my research due to the limited time I was able to spend in the field. Here, I identify three future research directions that may move this study toward meaningful policy-level impacts.

In his study on indigenous migrant farmworkers in California and Washington State, Holmes (2013) describes how the “clinical gaze” shapes migrants’ encounters with the U.S. healthcare system. He found that physicians in migrant healthcare value their own observations over migrants and unwittingly blame migrants for their suffering. Following Holmes (2013), future research on the politics of pesticide exposure would benefit from deeper ethnographic accounts of affected residents’ and farmworkers’ experiences navigating both regulatory and medical institutions. Participatory mapping projects with community members would also bring critical insights into the subjective and embodied impacts of pesticide exposure across time and place. Valerie, of CRPE, suggested a potential project with the Kern County Agricultural Commissioner’s office,

in which a researcher could collaborate with CAC staff create maps of pesticide application around schools that also detail the types of pesticides being applied and their acute/long-term effects. In line with critical and feminist GIS methods, another mapping project might compare GIS spatial mapping of pesticide application areas with participatory maps of pesticide exposure that are collaboratively generate with affected community members. Through this process of counter-mapping, one could explore how notions of scale and embodiment might influence a person's sense of harm, and subsequently produce a spatial and temporal map of how different people came to be affected by pesticide exposure. Lastly, a longer ethnographic study might investigate how individuals in closest proximity to harmful chemicals conceptualize and/or prioritize pesticide exposure, and explore whether variability in perceived harm exists across embodied and environmental scales.

Final reflections

As I stated in Chapter One, my thesis fieldwork began as an excavation of the multiple contradictions characterizing California's agricultural landscape, but ultimately those supposed contradictions revealed themselves to be the very conditions of possibility that support this landscape's existence. This study thus draws on feminist and political geographic engagements with scale to accomplish two central objectives: first, to make connections between the intimacies of the embodied harm and geopolitical-economic processes like immigration enforcement and food production; and second, to examine how different stakeholders – including environmental justice activists, affected residents, state employees and agricultural industry representatives – navigate geographies of

agricultural and urban interfaces and negotiate regulatory conflicts over pesticide buffer zones. In both cases, I observed the power of coalition-building across place and political priorities. Because farmworkers and immigrant Latinx residents in the San Joaquin Valley are disproportionately exposed to pesticides – whether through work or by attending schools adjacent to agricultural fields – it is essential to understand environmental and immigrant justice struggles as co-constitutive of one another.

Appendix

Interview questions for farmworkers:

1. What do you do for a living? *¿A qué se dedica?*
2. How long have you been working there? *¿Cuánto tiempo ha estado trabajando ahí?*
3. Do you come into contact with pesticides through your work? *¿Usted encuentra pesticidas en su trabajo?*
4. If so, did you receive training to handle pesticides? Was it sufficient? *¿Si es así, recibió capacitación para manejar pesticidas? ¿Fue suficiente?*
5. Do you live near areas where pesticides are sprayed? *¿Vive cerca de áreas donde se rocian pesticidas?*
6. Are you notified when pesticides are sprayed near your home? *¿Se le notifica cuando se rocian pesticidas cerca de su casa?*
7. Are you concerned about pesticide exposure? *¿Le preocupa la exposición a pesticidas?*
8. Have you ever reported a pesticide incident? *¿Alguna vez ha reportado un incidente con pesticidas?*
9. If so, how did you report it? Who did you report it to? *¿Si es así, cómo lo reportaste? ¿A quién se lo reportó?*
10. Did you see a doctor? How was that experience? *¿Viste a un médico? ¿Cómo fue esa experiencia?*
11. Are you involved in any community groups or organizations? *¿Está usted involucrado en algún grupo u organización comunitaria?*
12. Do you attend meetings about pesticide regulations? Why or why not? *¿Asiste a reuniones sobre regulaciones de pesticidas? ¿Por qué o por qué no?*
13. If so, what has that experience been like for you? *¿Si es así, qué ha sido esa experiencia para ti?*
14. Do your family or friends participate in these groups or meetings? *¿Su familia o amigos participan en estos grupos o reuniones?*
15. Are there other issues that you are worried about in your neighborhood? *¿Hay otros asuntos que le preocupan en su barrio?*
16. Have things changed since Trump was elected? How so? *¿Han cambiado las cosas desde que Trump fue elegido? ¿Cómo es eso?*

Interview questions for nonprofit staff, community organizers, and resident activists

1. What do you do at _____?

2. What brought you to this organization?
3. What issues is the organization most concerned about right now?
4. How big of a priority is pesticide regulation at _____ compared to other issues?
5. What are some of your biggest concerns about pesticides right now?
6. Are the communities that your organization serves also concerned about these issues?
7. What kind of relationship do you have with the CA Department of Pesticide Regulation?
8. Do you think that the CA Department of Pesticide Regulation is doing enough to unnecessary prevent pesticide exposure?
9. What are the biggest barriers to implementing pesticide reforms right now?
10. Has the Trump administration had an impact on the work that you do?
11. What are your thoughts on DPR's recent regulatory approaches (rollbacks of chlorpyrifos regulations, Telone banking, school buffer zones)?
12. What is most challenging about working with regulators?
13. What kind of relationship do you have with the farming community?
14. What issues do you agree on? What issues do you disagree on?
15. What is your relationship with the local Agricultural Commissioner's office?
16. What issues do you agree on? What issues do you disagree on?
17. Tell me about your community organizing strategy – how and why do you take this approach?

Interview questions for California Department of Pesticide Regulation staff

1. What do you do for work?
2. How did you get into this kind of work? Why?
3. How are pesticide regulations developed at DPR?
4. What are some of the biggest challenges to developing regulations? Why?
5. What kind of relationship do you have with the nonprofit community working on pesticide issues? CLRAF? CRPE?
6. What kind of relationship does DPR have with growers?
7. What kind of relationship does DPR have with county agricultural commissioner offices?
8. What is most difficult about balancing the needs and desires of growers and community members? Do you feel like those needs and desires are at odds?
9. What do community members and growers disagree about the most? What do you think about that?
10. Have things changed at work since Trump was elected? How so?
11. Are you concerned about the future of the EPA under Scott Pruitt? Why or why not?
12. What kinds of political barriers or challenges exist in your line of work?

Interview questions for County Agricultural Commissioner office employees

1. What do you do for work?
2. How did you get into this kind of work? Why?
3. How are pesticide regulations developed at DPR?
4. What are some of the biggest challenges to developing regulations? Why?
5. What kind of relationship do you have with the nonprofit community working on pesticide issues? CLRAF? CRPE?
6. What kind of relationship does DPR have with growers?
7. What kind of relationship does DPR have with county agricultural commissioner offices?
8. What is most difficult about balancing the needs and desires of growers and community members? Do you feel like those needs and desires are at odds?
9. What do community members and growers disagree about the most? What do you think about that?
10. Have things changed at work since Trump was elected? How so?
11. What kinds of political barriers or challenges exist in your line of work?

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Vita

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This thesis was typed by Ciara Segura