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'Accidents' and invisibilities: Scaled discourse and the naturalization of regulatory neglect in California's pesticide drift conflict

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Abstract

In this paper, I draw on the politics of scale literature in order to discuss the strategic use of scale as a framing device. I argue that scale-based framings can gain effectiveness through capitalizing on long-standing social inequalities and thus deserve careful consideration for their abilities to reinforce those inequalities and obscure ongoing illness. I discuss the ways in which actors in the present conflict over agricultural pesticide drift in California discursively engage scale in order to reframe the issue and justify (or, in other cases, contest) minimal regulatory response. I argue that the predominant scale-based framing of pesticide drift as a series of particularized, local 'accidents' gains its effectiveness through multiple intersections with long-standing social invisibilities and injustices endured by California's farmworkers, with the problematic results of rendering pollution invisible and naturalizing regulatory neglect. I also introduce the efforts of pesticide drift activists to 'push up' the framing of the issue, improve their political traction at the statewide level, and justify their demands for precautionary, health-based restrictions on the use of agricultural pesticides. Finally, I conclude by applying this analysis to recent debates for devolved environmental governance and problematizing the tendency to associate local governance and social justice.

Keywords: Scale; Pesticide drift; California; Agriculture; Discourse; Farmworkers

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Introduction: pesticide drift incidents and incidence

> Rather than establishing a uniform system of regulation of pesticide use throughout the state, the Legislature has chosen a flexible system, adjusting local need and environmental concerns and placing wide discretion in County Agriculture Commissioners, manifesting its intent that local concerns and conditions be given paramount importance (Department of Pesticide Regulation [DPR], 2001, p. 8).

> The disproportionate enforcement of…pesticide drift law is really just staggering. These good ol' boy county agriculture commissioners basically run the show…. Usually if the agriculture commissioner does something, they are slap-on-the-wrist types of fines (Environmental attorney, personal interview).[1]

Throughout the course of the evening of November 13, 1999, at least 170 residents of the small, agricultural community of Earlimart, California, repeatedly experienced frightening and inexplicable acute illness, including vomiting, impaired breathing, dizziness, and burning eyes and lungs. Emergency crews responding to the scene could not identify the source of the illness and were unsure of how to advise the victims, telling some to stay indoors while telling others to leave the vicinity. Emergency crews evacuated some residents to a nearby middle school, stripped them in front of their neighbors and television crews, and sprayed them repeatedly with fire hoses. A subsequent investigation revealed that a poisonous cloud of a soil fumigant called metam sodium, a known carcinogen and reproductive/developmental toxicant, volatilized more quickly than anticipated into MITC and other breakdown products and drifted into the town from a potato field one quarter of a mile away. Victims were left with fear, lingering illnesses, and medical bills they could not afford to pay.[2]

This incident in Earlimart is an example of pesticide drift, a term that refers to the offsite, airborne movement of pesticides away from their target location. Pesticide drift has become an increasingly controversial issue at the urban–agriculture interface, particularly in the wake of the large-scale drift incidents that have occurred every year or two since 1999 in Kern and Tulare Counties (see Table 1), located at the southern end of California's San Joaquin Valley (the area bounded by dashed lines in Fig. 1). In each of these large-scale incidents, up to several hundred residents or field workers have been exposed to highly toxic airborne soil fumigants and/or aerially applied insecticides.[3] The egregious nature of these large-scale pesticide drift incidents and emergency crews' poor responses have captured the attention of local residents, environmental and farm labor advocacy organizations, local and state regulators, legislators, and the media (for example, see Ritter, 2005a,b).

Considerable disagreement exists as to the frequency of drift incidents and the appropriateness of regulatory response. Official data indicate an average of approximately 370 verified

[1] I have obscured the identity of most of my informants in this paper in order to (a) protect the identity of my informants, and/or (b) draw attention to the framings and their effects rather than to the particular speaker.

[2] Information related in personal interviews with victims and agency officials, and as reported in newspaper articles (including Hsu, 2003a,b, 2004; Olvera, 1999a,b; Ortiz, 2003, 2004; Stapleton, 2003).

[3] Pesticide drift typically causes serious acute illness (nausea/vomiting, eye/skin irritation, difficulty breathing) and likely contributes to many chronic diseases, including asthma and other lung diseases, cancer, birth defects, immune system suppression, behavioral disorders, and neurological disorders (see, for example, Barnett, 1989; Kegley et al., 2003; O'Malley, 2004).

Table 1
Selected major pesticide drift incidents in California's San Joaquin Valley

Date	Town/location	County	# People affected
November 1999	Earlimart	Tulare	170 residents
June 2000	Terra Bella	Tulare	24 workers
June 2002	Arvin	Kern	138 workers
June 2002	Arvin	Kern	273 workers and residents
October 2003	Lamont	Kern	249 residents
May 2004	Arvin	Kern	19 workers
May 2005	Arvin	Kern	27 workers + six emergency crew

Sources of data: DPR Pesticide Illness Surveillance Program summary reports from 1999, 2000, and 2002 (PISP, 2006). 2003, 2004, and 2005 incident data from newspaper articles.

pesticide illnesses due to pesticide drift per year,[4] and California Department of Pesticide Regulation has reacted to this recent trend of incidents by stating that it always responds to complaints about pesticide drift, acknowledging the need for improved emergency response protocol, and issuing fines in some cases where application errors have been documented. However, farmworker rights advocates estimate that these statistics account for at most 10% of all exposures to pesticides (Cole, 1992), and recent research suggests that hundreds of thousands of Californians annually are exposed to pesticide drift at levels that exceed those currently considered safe by US EPA (Lee, McLaughlin, Harnly, Gunier, & Kreutzer, 2002). In ethnographic research, residents of farmworker communities report that drift routinely occurs in their neighborhoods and workplaces, that pesticide exposures severely compromise victims' long-term health, and that regulators routinely ignore victims' claims or fail to conduct complete investigations (personal interviews). Such evidence underscores the need for further investigation and suggests that current pesticide regulations are likely inadequate. The increased incidence of drift events has inspired the emergence of a nascent pesticide drift social movement, whose members criticize regulatory response to the issue and demand increased state and federal restrictions on the use of the most highly toxic and drift-prone pesticides. Regulatory agency representatives, however, dismiss the need for more rigorous regulations, framing pesticide drift as a series of isolated, localized 'accidents' occurring within an otherwise protective system and which is most appropriately addressed at the county level.

In this paper, I show that this conflict over pesticide drift – how the problem should be defined and regulated – pivots around representations of scale. I draw on the politics of scale literature in order to discuss the strategic use of scale as a framing device and to highlight the implications of such framings for questions of social justice. I emphasize the need to recognize how those representations of the problem resonate with the broader socio-economic and political inequalities of California agriculture – particularly the inequalities and invisibilities endured by farmworkers and their families.

In the sections below, I first describe the geographical focus of my case study and its particular demographic context. Next, I briefly outline the politics of scale literature, focusing on the ways that discursive representation of scale serve particular interests and shape public understanding of particular issues. I then introduce the socio-economic history of farm labor in California to suggest that the historical construction of an exploited and socially

[4] 370 represents the average number per year of the total 2218 suspected or confirmed illnesses due to pesticide drift from 1998 to 2003 as reported in California's Pesticide Illness Surveillance System (PISP, 2006).

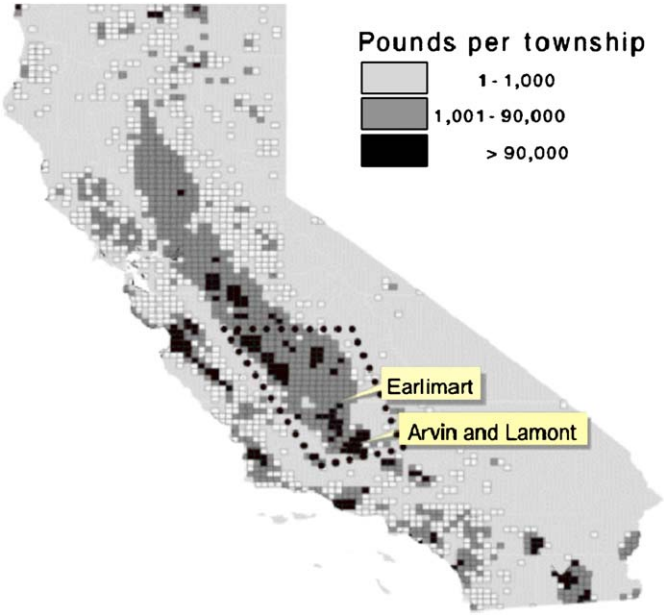

Fig. 1. Reported 'bad actor' pesticide use intensity in California, 2003. Pesticide use intensity refers to total pounds of active pesticide ingredient applied per township (6 × 6 square mile area). 'Bad actors' is a designation used by Pesticide Action Network to refer to pesticides that are known or suspected to be highly acutely toxic and/or capable of causing cancer, reproductive or developmental disorders, and/or neurotoxicity (see PANNA, 2006). The area bounded by dashed lines is the San Joaquin Valley. Source of data: Department of Pesticide Regulation Pesticide Use Report Data 2003.

subordinated farm labor force has rendered current farmworkers' issues invisible and has facilitated regulatory inaction in the face of ongoing harm. I then discuss my case study of pesticide drift in California, which highlights the scale-based discursive struggles between, on the one hand, regulators and industry representatives discursively 'pushing down' the scale of the issue to render pesticide drift invisible and justify current minimal regulatory response and, on the other hand, activists seeking to 'push up' the scale of pesticide regulation and justify precautionary state- and federal-level restrictions on pesticide use.[5] Finally, I conclude by applying this analysis to recent debates concerning devolved environmental governance and problematizing the tendency to associate local governance with social justice.

[5] A note on methods: In order to identify and compare the primary framings of pesticide drift, I conducted qualitative interviews and ethnographic and archival research between 2002 and 2005. Much of this investigation was conducted in Kern, Tulare, and Fresno Counties, as well as the San Francisco and Sacramento areas. I conducted over 60 in-depth semi-structured interviews and numerous additional informal interviews with regulators, pesticide drift victims and other community activists, health care professionals, industry representatives, academic researchers, NGO representatives, and policymakers. From 2002 to 2006, I conducted ethnographic research with the activist community, who graciously allowed me to observe and participate in all aspects of their pesticide drift campaigns, including meetings, conferences, document development, press releases, and celebrations. I also attended various community hearings and meetings on proposed pesticide policy sponsored by California Department of Pesticide Regulation (obtaining transcripts where possible) as well as numerous professional conferences on agricultural technology, workplace health and safety, and air pollution. I also analyzed different actors' framings of the issues as presented in relevant documents, including newspaper articles; agency reports; NGO publications, internal memos, and brochures; and laws, regulations, and policies.

Agriculture in California's San Joaquin Valley

Many aspects of this case study focus on the southern end of California's San Joaquin Valley for several reasons: large-scale drift incidents occur there on a regular basis (see Table 1); use rates of the most toxic pesticides are very high there (see Fig. 1); the region's air pollution ranks amongst the worst the nation, rivaling that of nearby Los Angeles; victims and other residents report being ignored by regulatory officials; and the region receives very little attention from academic researchers. The San Joaquin Valley exemplifies 'industrialized' agriculture: production is capital intensive and dedicated to high-value specialty crops (tree fruits, nuts, vegetables, and grapes), and landholdings are heavily mechanized and enormous in scale (for example, 81% of farms in Kern County are greater than 2000 acres, and the average size of farms in this >2000-acre group is 11,700 acres; NASS, 2002a). California agriculture in general is extremely pesticide intensive: the state accounts for only 2–3% of all planted cropland in the US but 25% of the nation's agricultural pesticide use (Kegley, Orme, & Neumeister, 2000, p. 13). Approximately 90% of all registered pesticides are prone to drift (due to products' formulations, as dusts or highly volatile fumigants, for example; see Kegley, Katten, & Moses, 2003, p. 7), and therefore likely to threaten human health far from the site of application. California Department of Pesticide Regulation (DPR) data indicate that over a third of all pesticide exposures are due to drift,[6] the significance of which is underscored by the fact that 34% of all reported agricultural pesticide use includes chemicals that are highly acutely toxic and/or capable of causing cancer, reproductive or developmental disorders, and/or neurotoxicity (Kegley et al., 2003, pp. 7–8).

Three chemicals most frequently implicated in recent drift incidents fall into several of these categories and thus pose serious consequences for human health: metam sodium (probable carcinogen and suspected reproductive/developmental toxicant), chloropicrin (high acute toxicity), and chlorpyrifos (neurotoxicant). The significance of soil fumigants (such as metam sodium and chloropicrin) must be emphasized here: as the use of methyl bromide (an ozone-depleting fumigant used extensively in US strawberry and tomato production) becomes restricted in accordance with the international Montreal Protocol, pest management advisors increasingly look to these other (highly toxic and volatile) fumigants as 'alternatives' to methyl bromide. Accurate knowledge about the toxicity of such chemicals and their propensity to drift and cause harm therefore becomes of utmost importance.

For many crops, the 'factory farming' style of agricultural production is also labor intensive and requires a ready supply of skilled, cheap labor on a seasonal basis. As a result, approximately one million farmworkers and their families populate California's agricultural landscape (Khan et al., 2003; Villarejo et al., 2000). In all of the San Joaquin Valley towns in which major pesticide drift incidents have occurred (see Table 1), the majority of the residents are farmworkers and their family members (personal interviews with residents). Social science survey work has shown that approximately 50% of California farm laborers are undocumented, most live in abject poverty (with average annual farmworker income falling between $7500 and $12,500 per year), and that most are immigrants from Mexico (Khan et al., 2003; NAWS, 2002; Rosenberg et al., 1998; Villarejo et al., 2000). 2000 US Census data similarly indicate that these communities on average are poor (showing that 17–19%

[6] The 2218 suspected or confirmed illnesses due to pesticide drift from 1998 to 2003 represents 38% of all 5826 suspected and confirmed pesticide illnesses during that time period (PISP, 2006).

of households in Earlimart, Arvin, and Lamont report incomes of less than $10,000 per year) and that the majority of residents are Latino (88–90% of the residents in these towns are Hispanic/Latino). Although pesticide drift is not solely a farmworker problem, farmworkers likely experience disproportionate exposure, have disproportionately low access to health and legal services, and possess a limited ability to make their experiences and concerns visible in local politics.

Geographical scale: discourse and power

In order to understand current conflicts over pesticide drift, this paper draws on recent theoretical developments in the politics of scale literature in human geography. Interrogations of the politics of scale constitute a rich body of work, which challenges the notion of scale as ontologically pre-given and instead investigates "the ways in which the social construction of scale shapes and is shaped by political and economic processes" (Kurtz, 2003, p. 888). Many contributors have shown that actors engage scales in ways that are advantageous to them, and that the interactions of political and economical processes at different scales have real material consequences (Delaney & Leitner, 1997; Herod, 1997; Marston, 2000; Miller, 1997, 2000; Smith, 1992; Swyngedouw, 1997). This point is succinctly made by Jonas (1994, p. 258):

> On the one hand, domineering organizations attempt to control the dominated by confining the latter and their organizations to a manageable scale. On the other hand, subordinated groups attempt to liberate themselves from these imposed scale constraints by harnessing power and instrumentalities at other scales. In the process, scale is produced.

As Jonas suggests, contestations over scale are most appropriately analyzed as a relational *process*, a struggle between different actors to reframe and otherwise re-position an issue to their own advantage (see also Brenner, 2001, p. 600; Purcell, 2003, p. 324; Swyngedouw & Heynen, 2003, p. 912).

This paper draws most explicitly on the strand of politics of scale literature that analyzes how actors strategically engage scale-based *discourse* in order to frame an issue in a particular way to effect change, whether to legitimize or challenge existing power asymmetries (Delaney & Leitner, 1997; Kurtz, 2003; Miller, 1997, 2000; Mitchell, 1998; Towers, 2000). This approach is influenced by broader postmodern developments in social science, notably the epistemological understanding that language constructs (not simply reflects) the social world (Fairclough, 1995; Foucault, 1990 [1978]; Hajer, 1995; Jones, 1998). Clearly, much of this work resonates with critical discourse analysis and the work of Michel Foucault, who insisted that while discursive representations often serve to reinforce existing power relations, discourse can also be used to subvert and shift them:

> We must make allowance for the complex and unstable process whereby discourse can be both an instrument and an effect of power, but also a hindrance, a stumbling block, a point of resistance and a starting point for an opposing strategy. Discourse transmits and produces power; it reinforces it, but also undermines and exposes it, renders it fragile and makes it possible to thwart it (Foucault, 1990 [1978], p. 101).

This point is similarly taken up by Herod, who argues:

> Recognizing that scale is socially constructed *opens* possibilities for political action because it acknowledges that geographic scales are materially constituted by social actors and that there is a politics to this constitution (Herod, 1997, p. 147).

Several recent contributions have refined this analytical focus on the strategic articulation of scale-based discourse. Thus, as Hilda Kurtz suggests, analysis of the ways different actors employ scale-based framings fulfills an important role in the broader theorizations of scale (Kurtz, 2002, p. 250):

> One of the central questions suggested by the notion that scale can be strategically leveraged in a spatial politics of domination and liberation is, of course, *how* do political actors reconstruct, transgress, and produce new scales of social organization, and with what effects? How precisely do domineering organizations confine weaker organizations to manageable scales? How do subordinated organizations liberate themselves from scale constraints imposed on them by others?

Miller (1997), drawing on the work of Henri Lefebvre, makes an influential contribution to the politics of scale debates with his analysis of the politics of defense investment in Massachusetts in the 1980s. Noting the disjuncture between material spatial practices of defense investment and the political representations of the issue, Miller emphasizes the significance of representation in shaping material outcomes:

> It is representations – often multiple and conflicting – that shape political action and economic policy…. Representations of socio-spatial processes are the conceptions through which people perceive, evaluate and negotiate spatial practice (Miller, 1997, p. 172).

In a similar vein, Williams shows that market-based explanations for environmental inequities can debilitate more radical and inclusive environmental justice efforts (Williams, 1999). His work suggests that the particular way in which a socio-environmental problem is framed will determine the seemingly appropriate solution. As other researchers have pointed out, scaled framings are particularly contentious in addressing environmental problems, as ecological processes frequently confound jurisdictional and other human-made scalar boundaries (Jepson, 2002; Meadowcroft, 2002).[7]

This paper has close affinity with research that illustrates how social movements discursively engage scale in order to justify calls for increased regulatory action. Of particular interest here are Hilda Kurtz's concepts of ''scale frames'' and ''counter-scale frames'', which she deploys to show how residents in Louisiana used multiple scale-based discourses in order to negotiate unsatisfactory and shifting regulatory attention to the proposed siting of a hazardous facility in their neighborhood (Kurtz, 2003). In this paper, I build on my previous work (Harrison, 2004) by focusing on the discursive struggles between actors employing particular scale-based framings to justify (or contest) the current regulatory response to pesticide drift.

In her assessment of Cox's work (Cox, 1998b), Katherine Jones discusses the ways in which scale as a representational trope becomes so influential: ''It is the power of selection and simplification – or categorization – that gives representations their persuasive power'' (Jones, 1998, p. 27). She argues that scale as trope can ''recast what is true or knowable'' about an issue; certain questions become ''un-askable'' (1998, p. 28, see also McMann, 2003, p. 162). Scalar discourse therefore has the power both to shift the scale at which a socio-environmental problem is addressed and to limit the array of available solutions. Cox replies by agreeing with Jones' claims about scale as representational practice and makes

[7] I thank one anonymous reviewer for making this pertinent observation.

an important qualification to her argument: "Representation is indeed about power. *But not any representation will do*" (Cox, 1998a, p. 44, emphasis added). For this reason, this paper articulates the politics of scale with an analysis of the politics of *place* in order to better understand how scalar discourse can intersect with local politics in order to produce particular socio-environmental outcomes.

Farm labor invisibility

The political and physical consequences of the politics of place are of utmost importance in environmental conflicts, including debates about pesticide drift. Swyngedouw and Heynen thus argue that socially just research

> needs to consider the question of who gains and who pays and to ask serious questions about the multiple power relations – and the scalar geometry of those relations – through which deeply unjust socio-environmental conditions are produced and maintained (Swyngedouw & Heynen, 2003, p. 901).

I will show in this paper that regulatory officials use scalar framings of pesticide drift as isolated 'accidents' to justify a minimal regulatory response. This predominant representation of the issue so effectively particularizes pesticide drift because it capitalizes on and maintains the culture of invisibility and relative powerlessness that has long characterized farmworkers and their families – the primary victims of pesticide drift. McWilliams (1999 [1935]) argued persuasively that since the 19th century the successful industrialization of California agriculture depended to a large extent on the cyclical exploitation of different race-based migrant labor groups (see also Galarza, 1964; Majka & Majka, 1982; Mitchell, 1996, 1998, 2001; Wells, 1996). The state and industry both played important roles in securing the vulnerability (and thus the controllability) of farm labor through various racist immigration and landholding policies, intense physical harassment, disparagement, and deportation – effectively producing a 'hidden' California of migrant laborers. Mitchell (1996) continued McWilliams' discussion of farm labor invisibility in his work on 1930s California labor struggles, arguing that popular characterizations of the agricultural landscape in California dismiss the labor conditions and environmental degradation that make its pastoral abundance possible.

The difficulties that today's farmworker communities face in their struggles against pesticide drift reflect broader discourses on immigrants and immigration in the United States. Chavez (2001) argues that immigration policies and discourse demonstrate a contradictory valorization of immigrant labor and criminalization of their needs as residents. In 1994 Californians approved Proposition 187, which targeted immigrants' use of health care and education (the 'reproduction' of the family and, hence, of immigrant communities). However, Proposition 187 did not target the productive capacity of immigrant labor: no funds were specified for increased employer sanctions, ensuring fair labor practices, or otherwise reducing incentives for hiring illegal immigrants (Chavez, 2001, p. 251). Chavez argues that guest worker program debates similarly demonstrate this tension between production and reproduction, since families' uses of social services are explicitly excluded from the provisions of such arrangements.

> A guest-worker program institutionalizes the perfect cost–benefit ratio for immigrant labor: bring the foreign workers produced at no cost to the American public…. In essence, production without reproduction, workers without families, sojourners not settlers (Chavez, 2001, p. 252).

This phenomenon has a long historical legacy in California. As Mitchell (1998) shows, farm laborers in 1930s California workers were hailed as valuable when they were complacent and obedient workers, and they were attacked and vilified as subversive 'communists' when they endeavored to collectively organize and demand better living and working conditions.

Local politics in California's agricultural regions have consequently historically failed to represent the interests of farmworkers, who in many cases form the majority of the residents but on average live in abject poverty and lack legal rights of citizenship. To be fair, farmworker concerns, including the problem of exposure to pesticides in farmworker communities, periodically do gain political visibility at the statewide level – notably, Pulido shows how United Farm Workers (UFW) Union was one of the primary agents behind 1970s pesticide legislation designed to protect farmworkers and consumers (Pulido, 1996). However, while many activists and scientists struggle to illuminate the pollution in water and air from pesticides, most pesticide activism since the 1970s has focused on the health risks to consumers from residues on food (Nash, 2004).[8] In the following sections, I argue that capital and state interests have been able to exploit the deeply rooted cultures of invisibility and blame afflicting farmworker communities in order to naturalize minimal regulatory response to the ongoing problem of pesticide drift.

Regulatory response to pesticide drift

In contrast to residents' characterizations of pesticide drift as a regular and long-term threat to public health, and in spite of the recurrence of large-scale incidents, regulatory response to the issue has been problematically minimal. Although California law mandates pesticide applicators to prevent drift from contaminating people or property nearby (CCR, 2004a), drift incidents continue to occur with disconcerting regularity. In response to pressure from environmental activists, California Department of Pesticide Regulation (DPR) officials have admitted that DPR defines drift too narrowly; however, the department has not yet changed the definition to include dust, volatilization, and other forms of post-application drift (DPR, 2000). In addition, the Toxic Air Contaminant (TAC) Act of 1985 legally mandates DPR to protect the public from exposure to airborne toxics; while DPR has significantly increased its attention to the TAC program in the past decade, the department thus far has listed only four pesticides as TACs.[9] Several of the department's most fundamental drift minimization efforts await cooperation from US EPA, whose own drift control work has been stalled since the start of the Bush Administration in 2000. DPR's program promoting less-toxic alternative pest management is not a mandated priority and was therefore the first to be eliminated in the State's recent budget crises. Finally, what could arguably be the most effective strategy for combating the problem of pesticide drift – phasing out the most drift-prone and highly toxic pesticides – is so wildly

[8] Similarly, Angus Wright showed that US consumers' concerns about pesticide residues on food in the 1970s prompted Mexican growers to shift from using highly persistent organochlorine pesticides (like DDT) to organophosphate pesticides that are less persistent but more acutely toxic for workers and nearby residents (Wright, 1990).

[9] TACs are "air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a present or potential hazard to public health" (DPR, 2004c), and DPR is required to design mitigation strategies to control the risks that each TAC poses. MITC, the major breakdown product of the highly toxic soil fumigant metam sodium – implicated in many of the major drift incidents – was declared a TAC in 2002. DPR has negotiated risk management strategies with metam sodium manufacturers and with US EPA since the product's 2002 TAC designation. However, as of January 2006 DPR has not yet implemented any use requirement regulations (DPR, 2004a).

unpopular with the politically and economically powerful agriculture industry (including growers' organizations, application companies, and pesticide manufacturers) that such suggestions are consistently dismissed as unrealistic or lambasted as threats to family farming.

Although DPR produced its "Pesticide Drift Incident Response Policy" in 2000, this document's failure to ensure appropriate incident response from county agencies is evidenced in subsequent poorly managed drift incident response, prompting 2004 legislation requiring the establishment of coordinated, statewide drift incident response protocol.[10] Admittedly, this system needs some fundamental restructuring. Drift victims report being discounted and disrespected by emergency crews, and official investigations indicate that crews have at times failed to properly decontaminate victims and disregarded response protocol, which has likely exacerbated some victims' exposure (DPR, 1999; Hsu, 2003a,b, 2004; Kegley et al., 2003; Olvera, 1999a,b; Ortiz, 2003, 2004; Stapleton, 2003). These points notwithstanding, regulators' refusal to discuss drift control measures beyond the realm of incident response effectively situates the issue at the local scale and fails to address the root of the problem – the widespread use of inherently toxic and drift-prone chemical technologies. However, regulatory officials staunchly defend the response to pesticide drift and explicitly deny the need for regulatory change; as the then-director of DPR stated in a television documentary in 2004:

> The California pesticide regulatory program is the best in the world, and we have a law that says you can't use a pesticide to cause an environmental effect or a human health problem. Period. So that's the law. And I'm not sure you could make it stronger than that (Taylor, 2004).

Devolved regulatory structure

California's pesticide regulatory apparatus is widely acknowledged as being the most elaborate state pesticide regulatory agency in the nation, and California decisions often drive US EPA pesticide regulatory actions. However, a considerable amount of those resources are devoted to data collection and analysis – not to pesticide use reduction programs. Additionally, the important responsibilities for enforcing the regulations designed to protect the public from exposure to pesticides are devolved to county agriculture commissioners (CACs). This devolution was designed to allocate discretion to local regulatory officials who could in turn tailor regulatory decisions to local conditions (DPR, 2001). However, those same officials work with a regulatory toolkit inadequate for effectively protecting public health, and CACs' ties to local political elites and responsibility for promoting the county agricultural economy present formidable conflicts of interest.

Inadequate regulatory toolkit

In spite of their charge to ensure that agricultural production is conducted in a safe manner, CACs work with a limited set of regulatory tools, which prevents them from proactively planning regional pesticide use into patterns that could protect the public from exposure. CACs' oversight process is based largely on retroactive information, where growers report their pesticide use weeks after pesticides are applied. CACs' proactive planning capacity is limited to

[10] California Senate Bill 391 (2004; Florez and Escutia).

issuing permits for ''restricted materials'' (a subset of many, but not all, of the most dangerous pesticides), the use of which requires approval over which CACs exercise tremendous discretion and freedom. DPR provides counties with ''suggested restricted material permit conditions'', and DPR officials claim that CACs follow these guidelines ''most of the time'' or ''9 out of 10 times'' (DPR lead official, personal interviews) – thus meaning that thousands of pesticide applications plans per year deviate from the state's recommended guidelines. Many CACs design 'universal' permit conditions for a particular chemical yet reserve the right to grant exceptions, and many counties forgo universal minimum conditions for a given product in favor of case-by-base assessments.[11] Furthermore, permits are evaluated in isolation from each other; this reductionist review process therefore fails to account for the synergistic and cumulative health effects of all pesticide applications in a given period. Officials have no capacity to evaluate and plan for the total combined exposures of multiple pesticides to which nearby residents will realistically be exposed. Finally, permit conditions typically contain vague statements such as ''utilize due care to prevent drift'' and ''check for odors'', leaving a considerable amount of decision making open to applicators' interpretation.

A 'captured' agency

CAC offices operate under considerable pressure from the agricultural industry and have long been regarded by many critics as an agency captured by industry: CACs are directly appointed by local elected officials (county supervisors), the local economy is devoted to agriculture, and CACs are responsible for promoting the agricultural economy within the county. DPR oversees CAC activities, yet DPR's own leadership always hails from industry.[12] While this influence in local regulatory processes is common in regions dominated by one industry, it is particularly consequential in counties like Tulare and Kern where a large percentage of the population has little ability to participate in – much less influence – local politics. The particular evolution of California's farm labor market that produced a rural underclass whose concerns are relatively invisible in local politics or regulatory decisions for a variety of reasons (lack of citizenship, poverty, threat of retribution from employers, lack of technical expertise, language barriers, etc.) significantly stymies the ''public's'' ability to influence regulatory decisions to the degree that the $26 billion agricultural industry can (NASS, 2002b).

[11] According to DPR, ''The criteria to designate a pesticide as a restricted material in California include hazards to public health, farm workers, domestic animals, honeybees, the environment, wildlife, or crops other than those being treated'' (DPR, 2004b). However, a number of highly toxic, widely used, and drift-prone chemicals are not on the list. Non-restricted materials include chlorpyrifos and diazinon; both of these chemicals have been deemed so toxic that their residential uses have recently been severely restricted, although they escape the permitting process required of restricted materials. While CACs are legally entitled to enact permit conditions for non-restricted materials (DPR, 2002), one CAC deputy asserted in an interview that CACs never do so. The only products for which DPR has boosted use requirement regulations (that is, as opposed to guidelines) exceeding the national rules are the fumigant methyl bromide (whose new permit conditions can arguably prevent acute methyl bromide drift incidents) and a number of herbicides and cotton defoliants (largely in response to growers' concerns about damage to crops in adjacent fields). DPR has not done this for any of the heavily used, highly volatile, and highly toxic pesticides that are frequently involved in drift incidents – in spite of their evident propensity to drift and cause harm. See CA Code of Regulations Section 6450 (CCR, 2004b).

[12] The current DPR director, Mary Ann Warmerdam, spent twenty years working for the California Farm Bureau Federation, a growers' lobbying organization.

Thus, regulatory structure combines with the historical and continued invisibility of farmworkers in agricultural California to produce a 'local' politics in which 'productionist' interests trump all other local concerns.[13] This is evident in CACs' reluctance to discipline growers and pesticide applicators in cases of regulatory violations: from 1998 to 2004, CACs statewide were eight times more likely to issue a warning letter than a fine in the case of a regulatory violation, and in Kern and Tulare counties the average annual number of warning letters was *ten* times higher than monetary fines (see Table 2). Ethnographic data support this suggestion; as one farmworker advocate noted, ''When people call in to report being sprayed, ag commissioners often tell the caller that they will go talk to the sprayer instead of filing an official report'' (personal interview).

Productionism is also evident in public electoral decisions, as Kern and Tulare Counties show some of the lowest rates of approval for statewide environmental measures of all California counties.[14] My informants frequently expressed a sentiment that the agricultural industry is well protected in this region; as one new 'renegade' local elected official critically observed: ''this is a very conservative, gun-slinging, spur-wearing…kind of a town that looks out for the farmers'' (personal interview). Regulatory protection of growers' interests has deep historical roots. Although the state's devolved pesticide regulatory structure is designed to prioritize 'local' needs, these have historically been defined primarily in terms of crop protection. Researchers have shown that local pesticide regulatory action has historically been motivated to protect other farmers' economic concerns, not for ecological or public health reasons (Baker, 1988; Nash, 2004). Lake and Disch (1992) have similarly noted ways in which industry and regulatory interests converge, particularly when regulatory scalar 'fixes' particularize pollution debates and thus serve the interests of the regulated.

One consequence of this convergence of industry and regulatory interests in the San Joaquin Valley is that people who criticize or call into question the safety of dominant agricultural practices – such as reporting perceived pesticide illness in this region whose primary industry depends on regimes of extenstive chemical use – are frequently dismissed or denigrated. Victims expressing concerns about pesticide issues are commonly characterized as ''emotional'', ''irrational'', and easily swayed by scare tactics from ''environmentalists''. One politically active resident recalled an event in which a neighbor of hers in a small Tulare County town claimed at a town council meeting that she had been recently sprayed by pesticides and consequently broken out in a rash:

> So all of these farmers showed up, and I happened to be at this meeting, and god they were just mean to her, they were brutal, they called her crazy…. I was amazed how she was treated and dismissed and accused of being nuts, and I had no reason to doubt what she had said (personal interview).

Many residents also report having been ignored and disbelieved by regulatory agency representatives; as one resident noted, ''it's hard, they really continue to try to dismiss you and make it difficult for you when you call them'' (personal interview). A scientist at a environmental NGO reported that industry representatives

[13] I use 'productionism' here to refer to what Thompson (1995) has termed ''the productionist paradigm'' – an ideology and accompanying set of narratives which support the perception of agricultural regions as industrial zones.

[14] Press (2002) shows that only 15 of California's 58 counties had lower average approvals of statewide environmental ballot measures from 1924 to 2004.

Table 2
Pesticide violation enforcement record in selected California counties and statewide (1998–2004)

	Average number of warning letters per year	Average number of fines per year	Ratio of letters to fines
Kern County	185	18	10 to 1
Tulare County	191	18	10 to 1
CA statewide	5166	636	8 to 1

Source: California statewide pesticide regulatory activities summary (DPR, 2006).

> applauded at a talk I gave to a bunch of applicators and regulators when one of the audience members said that there really weren't any farmworker poisonings – they were just faking it so they could get off work (personal communication).

Pesticide drift victims and their advocates emphasize that this ridicule and disparagement of concerns about pesticide exposure intimidates other workers and residents into not reporting their own experiences.

Such denigrations extend into the medical community, where at times victims are accused of fabricating their symptoms. In June 2000, 24 farmworkers sprayed with chlorpyrifos, a highly toxic organophosphate pesticide, were taken to the hospital, and then subjected to the following treatment:

> In the hospital a physician stated in English to other staff that she thought the women were faking the illness and should be labeled across the forehead, 'faker number 1, faker number 2,' and so forth. She was later compelled to apologize in the local newspaper (Reeves, Katten, & Guzmán, 2002, p. 11).

The consequences of such dismissal became painfully clear in Lamont (Kern County) in October 2003, where the failure of officials to take seriously 40 residents' illnesses one night enabled the pesticide applicator to continue with the second half of the field fumigation the following day – sickening a total of at least 249 people with chloropicrin (Hsu, 2003a,b).[15] Such dismissals gain strength from the vulnerabilities of farmworkers and other low-income, immigrant, and/or undocumented community residents and in turn render further invisible the realities of life in farmworker communities – thus minimizing and undermining public understanding of the extent of pesticide drift.

Regulatory discourse: drift as accident

Although this devolved pesticide regulatory system situated within a web of productionist politics and social invisibilities exacerbates and obscures the problem of pesticide drift, regulatory officials and industry leaders discursively frame the issue in a way naturalizes those dysfunctions. I argue in this section that the common regulatory and industry framing of pesticide drift as a series of isolated 'accidents' firmly situated at the local scale effectively 'pushes down' the scale at which the problem is perceived, thereby minimizing the problem, naturalizing the state's minimal and devolved regulatory response, and fortifying the invisibility of farmworker issues in California.

[15] Local officials have glossed over this tragic mishap, as in the following statement: "So the good part was that we learned from Earlimart and Arvin and were able to enact that response plan in Lamont, and it actually worked very well for getting information to the people that were out there" (County Agriculture Commissioner, personal interview).

To downplay public concern about the issue and deny allegations of insufficient attention to pesticide drift, regulatory officials consistently limit the scope of the problem to the set of verified incidents reflected in official data and insist that pesticide drift happens only rarely:

> There are over a million pesticide applications every year [in California]. The incidents of drift are around 40 per year, so that's a relatively small number (former DPR director, quoted in Barbassa, 2004a).

> Well, it doesn't happen as often as people–, I mean it doesn't happen every month (State legislator from Kern County, personal interview).

> I think the number of incidents that have occurred given the, are really not that significant given the amount of material applied (Kern County Environmental Health Department official, personal interview).

Minimizing the scope of the problem and insisting on the rarity of incidents enable regulators to frame the issue of pesticide drift as a series of isolated 'accidents' occurring within an otherwise protective system:

> When you really think about it … we have 100,000 pesticide applications a year [in this county], and when you have a relatively small number of incidents that impact the people or the environment, the system for the most part works (County Agriculture Commissioner, personal interview).

> I think that saying the system isn't working is a little bit of a stretch, when in fact it is the people who are not following the rules who are creating the problem (County Agriculture Commissioner, quoted in Ortiz, 2004).

> So accidents will happen even though training we go through. We go through the training, we go through the understanding but unfortunately from time to time we have tragic accidents (County Environmental Health Department official, personal interview).

In contrast to some residents' claims that pesticide drift is a common occurrence indicating the need for state and federal authorities to tighten restrictions on agricultural chemical use, officials' framing of pesticide drift as rare, isolated 'accidents' pushes the scale at which the issue is perceived down to that of the individual incident and therefore justifies the devolution of regulatory responsibility and discretion to CACs. Accordingly, regulatory officials, elected officials, and industry leaders staunchly defend the effectiveness of the current system in protecting public health and deny the need for any regulatory changes:

> I would say the system works quite well considering the variability and the process that they use in pesticide application (County Environmental Health Department official, personal interview).

> Risk assessments demonstrate that products that are being used do not pose an unacceptable health risk (DPR scientist, personal interview).

> I don't think that [pesticide drift] is a big issue from a health risk or an environmental standpoint…. Do I think there's an eminent risk out there? I don't at all (Attorney for major fumigant manufacturers, personal interview).

> The system works…. Unfortunately, we have people who don't follow the law (County Agriculture Commissioner, quoted in *The Bakersfield Californian*, ''Players Discuss Current'', 2005).

> It appears from everything I've seen in those incidents (that) it is the applicator's negligence…. If you look at the amount of pesticides that are applied, I think that we seem to be doing everything right. Unfortunately, there are a few people out there that harm the whole industry (Kern County Supervisor, quoted in *The Bakersfield Californian*, ''Players Discuss Current'', 2005).

This framing of pesticide drift isolates incidents from each other into a manageable number of localized 'accidents', reinforces the idea that drift is a localized – that is, non-systemic – problem, and in so doing 'pushes down' the scale at which pesticide drift would seem to be most appropriately understood and regulated. In turn, the devolved nature of California's pesticide regulatory structure compounds the particularizing effects of the 'accident' discourse. This predominant narrative about pesticide drift surfaced as a consistent theme throughout various sources of data, including regulatory officials' statements in recorded semi-structured interviews; official government documents; and regulatory officials' public statements in documentaries, public meetings, and newspapers. I should note that in private, confidential conversations, some regulatory scientists deviate from this predominant story, admitting that regulatory programs do a poor job of evaluating numbers of pesticide exposures, that regulatory decision-making processes are conducted under extraordinary pressure from industry, that managers often disregard scientific information, and that activist groups have disproportionately low influence over regulatory decisions. I emphasize the narrative of 'accidents' here because they constitute the public 'party line'; I am concerned with institutional response and with the capacity of the predominant narrative to obscure undue industry influence, to naturalize regulatory failure, and thus to legitimize the neglect and exacerbation of environmental illness.

This phenomenon is clearly not limited to pesticide poisonings; Luke Cole similarly argued that environmental regulations frame polluters as 'outliers' in an otherwise protective system (Cole, 1992). These findings also echo those of Lake and Disch (1992), who argue that hazardous waste regulatory structure postpones citizen participation, limiting it to questions of facility siting. In so doing, this structure excludes from debate questions about pollution prevention, and the accompanying discourse frames community opposition in terms of self-interested NIMBYism (Lake & Disch, 1992). In the conflict over pesticide drift, the consequences of this phenomenon are manifest in its physical effects: in spite of evidently dysfunctional regulatory structure and ongoing occurrence of incidents and illness, the 'accident' framing enables actors in positions of power to allocate responsibility to the verified pesticide (mis)applicator and focus regulatory action on identifying the particular rules broken. As a result, this framing justifies current regulatory response, makes increased regulatory action at the state or federal level simply unnecessary, and thwarts opposition by disconnecting pesticide drift from debates about pollution prevention.

Social movement response: regulatory agencies "get an 'F'"

While large-scale pesticide drift incidents define regulatory officials' framing of the problem of pesticide drift as a series of isolated incidents, those same incidents catalyzed a nascent social movement whose members share the conviction that pesticide drift is a recurrent problem insufficiently addressed by both state and federal regulatory agencies. The 1999 pesticide drift

incident in Earlimart is an especially powerful motivating force for many activists. Earlimart residents angered by ineffectual emergency response, mistreatment of affected victims, and slow reaction from regulatory agencies joined together to form El Comité Para El Bienestar de Earlimart (Committee for the Well-Being of Earlimart). Teresa de Anda leads this community-based organization and today is a central actor in the statewide movement to illuminate and contest the problems associated with pesticide drift. Subsequent incidents in Arvin (in which 135 workers were exposed to metam sodium in June 2002, and 250 residents were exposed also to metam sodium just one month later in July 2002) and Lamont (in which 249 residents were exposed to chloropicrin in October 2003) fueled community activism and concern about public health impacts of agricultural pesticide use.

After the Earlimart incident, victims and other concerned residents joined forces with Californians for Pesticide Reform (CPR), a statewide coalition of 170 community-based, regional, and statewide organizations aimed at reforming pesticide laws and regulations in order to improve protections for public health and the environment (Californians for Pesticide Reform [CPR], 2006). CPR member organizations tackle pesticide pollution in air and water and on food from many different approaches, but CPR's drift campaign focuses specifically on the health effects of regional airborne pesticides. CPR began this pesticide drift campaign in 2001 with the triple aim of boosting the organizing capacity of community-based organizations focused on drift issues, using legal action to improve enforcement of existing regulations, and pushing for state-level legislative and regulatory reform. CPR's drift campaign coordinator Tracey Brieger explains that while the Earlimart incident provided part of the initial motivation, subsequent incidents have helped focus the coalition and justify their concerns (personal communication). Although activists note that the major pesticide drift incidents put the issue on the political agenda and underlined the dire need for improved emergency response procedures, their key contention is that pesticide drift is a systemic, common problem across agricultural regions whose solution will require significant precaution-based pesticide restrictions at the state and federal level. In contrast with capital and state interests' efforts to 'push down' the framing of pesticide drift in order to minimize the scope of the problem and justify current regulatory response, activists struggle to 'push up' the framing of the problem in order to justify their calls for regulatory action at a higher jurisdictional scale.

California's current pesticide reform leaders oftentimes express acute concerns about the environmental justice dimensions of structural and technological issues in California agriculture, and many – such as CPR director David Chatfield, who worked as an organizer for the United Farm Workers Union under Cesar Chavez in the early 1970s – have decades of experience working to promote social justice in rural California. The resulting familiarity of farmworker issues and established connections with farmworker communities enables leaders within the social movement to gather and report the experiences of farmworkers and other residents of poor rural communities who are reluctant to speak out. Activist leaders use this information as the basis for arguing that pesticide drift is an everyday problem whose scope greatly exceeds the official statistics.

Community residents across California describe innumerable events of being exposed to pesticides from neighboring farms while working in the fields or while spending time in their yards.

> I figure I'm being drifted on by the entire Oxnard plain. And it's not target-specific, and it's on-going, and it lasts for months and it's in the carpet and it's in garden soil (Resident-activist, personal interview).

> These things happen every day (Resident-activist, personal interview).

> The art of pesticide application is not precision delivery. It's sloppy, and it often spills over (Environmental attorney, personal interview).

> When these accidents happen, they are affecting people over a long term, and we're convinced that the everyday exposure is affecting people negatively too and the kids…. In Alpaugh, when I lived there, I'd always hear stories about people getting sprayed, and losing their gardens, and it was like they'd just accepted it, you know, which isn't good (Resident-activist, personal interview).

Research about pesticide exposure documents that most incidents are never reported because victims don't know they should be, they don't know how to, they don't want to jeopardize their employment, they cannot attract the attention of the law on account of their (un)documented status, they do not have access to medical care, they have a difficult time effectively communicating with local officials or other investigators, or because doctors commonly do not accurately diagnose pesticide exposure (Das et al., 2001; Pease et al., 1993; Reeves et al., 2002). Such complications are widely recognized and help to substantiate activists' assertions that pesticide drift is a regular and systemic problem whose visibility is thwarted by these structural inequalities:

> There's incidents that are happening all of the time, they just go on not reported. Sometimes the people don't want to get involved – fear of retaliation – or they just simply don't know what it is (Community organizer, personal interview).

> Farmworkers generally just want to work, eat, raise their kids, pay their bills, and not make any noise or cause any problems. They don't want attention, so they don't speak out (Resident-activist, personal interview).

> I really do truly believe that because of the different statuses and inefficiency of the [immigration] system, it deters people from stepping forward. So I think that in essence we truly don't ever know exactly who's affected, who's falling victim because a lot of people…. think it's going to be a paper trail back to them, and they are going to get sent back to Mexico…. in that indirect way we are not getting true data (Kern County Supervisor, personal interview).

> It's not just violations or big accidents or even any accident [that cause health problems in communities]: Legal standards don't protect health (Resident-activist; testimony at regulatory meeting).

> When I'd try to report drift, I'd get told that [the farmers] can do that, they were there first. Nothing would be done. Ag was exempt (Resident-activist, quoted in Barbassa, 2004b).

Activists use this understanding of the scope of the issue as the basis for their precaution-based, overarching policy goal: "We call on US EPA and DPR to phase out the most hazardous, drift-prone pesticides and pesticide application methods, and to create strong, effective, and enforceable drift laws and regulations" (Kegley et al., 2003, p. 53).

Although farmworkers and their families are frequently exposed to pesticide drift and certainly experience disproportionately low access to social services, activists and sympathetic elected officials acknowledge that farmworker's and other poor communities' lack of political clout has made political and regulatory reform difficult:

> Most of [the farmworkers] are not constituents, most of them are not voters, most of them do not really, as we say, come to [County] Supervisor's office and set an appointment up and say, 'we're really concerned about this' (CPR leader, personal interview).

> But because there's a thought that these are, if you will, very dispensable folks – they work, they travel, we don't know them, they don't go to meetings, they don't participate – they're almost seen as, again, a story (State senator, personal interview).

> If it had happened – it *wouldn't* happen, you know, in an upper middle class neighborhood – but if it did, it would be all over the news (Resident-activist, personal interview).

Similarly, activists and sympathetic elected officials also recognize that pesticide drift is perceived as a 'part of life' in the public's view of agricultural spaces, thereby compounding the invisibilities endured most acutely by farmworker communities:

> I think what the problem is, is that people accept it because they think that's part of the industry (Resident-activist, personal interview).

> The problem is that every time there has been a pesticide drift in the Central Valley, people have turned a blind eye to it and said, 'Well, that's just part of the harvest' (State senator, quoted in Lee, 2004).

> You can smell [the pesticide use]. You can see it. When you drive, it gets on your windshield…. People think it's a price they have to pay to live where they live (Resident-activist, quoted in Ritter, 2005a).

Armed with this knowledge of the structural inequalities faced by residents of the San Joaquin Valley, CPR has devoted a large part of its resources to three counties there (Fresno, Tulare, and Kern), assisting communities groups in their efforts to educate, organize, and otherwise empower residents. At the same time, however, movement leaders recognize that victims, concerned residents, and other activists aren't limited to farmworkers in that region, and the large-scale accidents that disproportionately impact farmworker communities aren't the only forms of pesticide drift. Activists know that local regulatory reform is nearly impossible, since CACs prefer 'voluntary' regulations that play directly into the hands of agricultural elites; as one environmental attorney wryly noted, "'voluntary' equals 'loophole'" (personal interview). One CPR leader characterized county-level work as difficult in the following way: "The CACs are also very wary of getting more regulated. They're extremely hostile to that. They like to be able to run their own shows, their own empires" (personal interview).

Movement members thus emphasize the need to frame pesticide drift as *air pollution* to draw attention to the problem as an 'everyday' one that confounds smaller jurisdictional scales such as counties:

> It's the day-to-day drift that is the biggest problem, because it's the one that isn't even looked at, not even considered, whereas the accidents get the front page of the newspaper (Resident-activist, quoted in Taylor, 2004).

> CPR's goal is to show that pesticides and air pollution are connected (CPR Director Chatfield; statement at 2005 CPR conference in Fresno, CA).

> Pesticides are THE pollution problem in California (Respiratory specialist–activist; statement at 2004 CPR conference in Berkeley, CA).

Characterizing pesticide drift as air pollution releases pesticide drift from the discursive quagmire of regulatory officials' 'accident' framing and 'pushes up' the scale of the issue beyond that of the county and thus up to the level of statewide jurisdiction. CPR leaders

emphasize the importance of addressing the issue at the statewide level: "state level work is the place where we can seek to make real changes that reduce the exposure of communities to drift" (CPR, 2003). CPR publications lament the wide variations in pesticide use guidelines across counties (PANNA, 2004), indicating a shared belief that all Californians deserve equal protections from pesticide drift – a sentiment also reflected in the fact that CPR renamed its pesticide drift campaign to "Safe Air For Everyone" (SAFE).

Armed with a frame that illustrates the problem as one of broad, statewide public concern, activists are thus well positioned to build coalitions with other (more politically empowered) constituencies and to demand statewide regulatory reform. Indeed, one of CPR's founding principles is to "Expand and support a network of grassroots community activists pursuing local pesticide reform in their own regions and mobilizing their communities to push for statewide policy reform" (CPR, 2006). Building coalitions with groups focused on the more 'traditional' forms of air pollution has been a particularly useful strategy, given the newfound priority that the Central Valley's air pollution problems have found on the public and political agendas.[16] As one example of activists' efforts to insert pesticides into current air pollution debates, a disparate coalition of groups across California has joined together in litigation efforts aimed at drawing attention to the state's failure to reduce the contribution of pesticides to the overall load of ozone-producing volatile organic compounds (VOCs).[17]

The pesticide drift movement's efforts to transform pesticide exposures into an issue that extends beyond the realm of farmworkers has not gone unnoticed: a state senator noted that "This has moved from a farmworker fight in the past to middle-class America taking up the battle cry – everyday people living in suburban parts of agricultural areas" (Ritter, 2005b). The role of grassroots activists in this shift is also widely acknowledged: "If it were not for Teresa [de Anda], DPR would not have elevated some of these drift incidents to the level at which they did…. She's raised consciousness at the state level. She was a key player in [Senator] Dean Florez's recent package of air pollution bills" (Environmental attorney, personal interview).

This 'upscaled' framing and organizing strategy has improved activists' political traction and facilitated their statewide regulatory reform efforts. Through help from activists across the state, CPR and state senators Dean Florez and Martha Escutia successfully secured the passage of the Pesticide Exposure Response Act (SB 391, 2004), which set up medical reimbursements for uninsured victims of drift and mandated improved incident response protocol. Pesticide drift activism also appears to have helped boost victims' bargaining power and draw attention to notoriously 'sloppy' pesticide application companies: for example, the pesticide application company Western Farm Service paid an unprecedented $775,000 in a 2005 settlement to 84 of the victims of a 2002 drift incident in Arvin (Simmons, 2005).

It should be noted, however, that activists also argue that punishing violators with monetary fines isn't a sufficient solution, particularly when the violators are multi-billion dollar

[16] The San Joaquin Valley has some of the worst air quality in the nation; it has fallen into the status of "severe non-compliance" of Clean Air Act standards. The San Joaquin Valley contains four of the nation's top five most ozone-polluted cities and three of the nation's top five metropolitan areas most polluted by year-round particle pollution (annual $PM_{2.5}$) (ALA, 2005).

[17] For example, the non-profit environmental law firm Center on Race Poverty and the Environment represented a variety of pesticide activist and air pollution groups (including Association of Irritated Residents, Communities and Children Advocates Against Pesticide Poisoning, the Wishtoyo Foundation, Ventura CoastKeeper, and El Comité para el Bienestar de Earlimart) when it sued the Department of Pesticide Regulation and the Air Resources Board in May 2004 on account of the state agencies' failure to reduce pesticides' contributions to the Valley's ozone problems.

multinational corporations: ''they can still drift, they just have to pay; it doesn't stop the drifting'' (Resident-activist, personal interview). CPR scientists therefore arm activists with data showing that pesticide illness would continue to occur even if applicators never made errors. In their 2003 report ''Secondhand Pesticides'', CPR argues that its independent analysis of state air monitoring data indicates that ''pesticide concentrations in air exceed levels considered 'safe' by regulatory agencies even when pesticides are applied according to label directions'' (Kegley et al., 2003, p. 4).[18] CPR also notes that DPR's own Pesticide Illness Surveillance data show that 38% of reported pesticide poisonings from 1997 to 2000 occurred in the absence of any worker safety violation (Reeves et al., 2002, p. 19).

This data analysis backs up the movement's collection of anecdotal evidence showing that regulatory agencies underestimate the scope of the issue, and activists use these different forms of evidence to argue that current regulations poorly protect people from pesticide drift. As one attorney representing drift victims bluntly stated in response to my question about how well regulatory agencies have addressed the problem of pesticide drift: ''They get an 'F''' (personal interview). Motivated by this conviction and several legislative and legal success – and armed with evidence of regulatory failure as well as an 'upscaled' discursive frame – these activists have built a strong case for the need for a precautionary, health-based strategy of pollution prevention based on a model of pesticide use reduction.

Conclusion: implications for environmental governance

Many contributors to the politics of scale research have shown that social movements and other actors use scale-based discourse in order to press their claims. I have drawn on and further developed this rich body of work by showing that the effectiveness of scaled discourse (in this case, regulators' 'downscaled' framings) can stem from its intersections with long-standing social inequalities – with the problematic results of both making an egregious socio-environmental problem seemingly disappear and naturalizing regulatory neglect. I have shown that regulators' and industry representatives' 'downscaled' framing of pesticide drift as a series of isolated 'accidents' obscures an ineffective and socially unjust regulatory response, the dysfunctional nature of which largely derives from – and in turn reinforces – the historical invisibility of farm labor in California and the ways in which that invisibility intersects with productionist local politics. Pesticide drift activists have dealt with this problem by showing that the scaled nature of pesticide drift confounds devolved regulatory frameworks, 'pushing up' the scale at which pesticide drift is framed, and organizing and pursuing change at higher jurisdictional scales.

Consequently, I argue that the critical politics of scale work has significant application for recent interest in devolved environmental governance. 'The local' is commonly touted as the space in which people can most directly voice their concerns and effect political change, due to local officials' proximity to constituents and familiarity with local issues. A number of scholars advocate for the devolution of environmental governance on the grounds that it increases democratic participation in local politics (Fung & Wright, 2001; Lindsay, 2000). However, recent conflicts over agricultural pesticide drift in California problematize the

[18] Environmental Working Group conducted independent air monitoring in 2000 with similar results (Gray, Ross, & Walker, 2004). Similarly, Linda Nash outlines the development of research on organophosphate pesticides from the 1970s and 1980s, which demonstrated the ''chaotic, unpredictable ecology'' of farm chemical use in spite of widespread use and regulatory agencies' assurances of safety (Nash, 2004).

unquestioned advocacy of devolved environmental governance, particularly in situations where local political elites may be 'captured' by industry and/or where a large percentage of the population is politically disenfranchised. Indeed, the case of pesticide drift illustrates rather poignantly the consequences of the presumption that devolved governance facilitates political representation – given that the inability of a large population to register its experiences in local politics effectively renders ongoing injustices such as pesticide exposure invisible and thus unaddressed.

In so doing, this study joins other recent research recognizing the potentially problematic aspects of localist politics (Cohen, 2003; DuPuis & Goodman, 2005; DuPuis, Goodman, & Harrison, in press; Harvey, 1996; Hinrichs, 2003) and over-reliance on devolved governance structures (Amin, 2004; Bonney, 2003; Grant, 1996; Humphrey & Shaw, 2004; Lawrence, 2004). Meadowcroft (2002) argues that pushing up the scale of governance can enable more effective pollution prevention; however, he also warns that 'upscaled' regulations are typically adopted haphazardly and layered on top of existing regulatory frameworks. Clearly, this debate indicates the need for further interrogation into the effective and socially just allocation of regulatory responsibilities across jurisdictional scales.

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