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Invisible People, Invisible Places Connecting Air Pollution and Pesticide Drift in California

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For decades, public health experts have recognized pesticide pollution as a problematic consequence of agricultural production. Pesticide drift is the latest version of these debates about the public health impacts of pesticide use and refers to situations in which pesticides move away from their target pest or crop and cause harm to people nearby.¹ The following two cases are examples of the type of drift incidents that received media attention in recent years:

In November 2000, at least thirty-five elementary school children and several teachers in Ventura County were hospitalized after a cloud of chlorpyrifos (Lorsban) drifted onto school grounds from a nearby lemon orchard. Chlorpyrifos is a neurotoxic organophosphate (OP) insecticide and has been classified as a suspected endocrine disruptor and possible developmental or reproductive toxicant. Chlorpyrifos was recently banned by the federal EPA for almost all residential uses but continues to be one of the most extensively used organophosphate pesticides in agriculture (PAN, 2003; Solomon, 2000).

In November 1999, 180 people were evacuated from the town of Earlimart in Tulare County after toxic vapors from the breakdown of metam sodium drifted from a nearby potato field. The soil fumigant drift sent at least twenty-four people to the hospital; most of the victims complained of acute effects, such as difficulty breathing, nausea, headache, and burning eyes and throat. Earlimart residents report that asthma and other respiratory ailments have increased since that incident. Metam sodium is

listed by the state as a carcinogen, developmental or reproductive toxin, and possible endocrine disruptor (PAN, 2003).

Events such as these have put pesticide drift on the political agenda. For example, the U.S. Environmental Protection Agency (EPA) is currently debating new pesticide label requirements designed to help reduce spray drift accidents during application. Additionally, California's Department of Pesticide Regulation now has a Pesticide Drift Task Force, and the California EPA is currently aiming to reduce the incidence of drift by considering legislation that will restrict the conditions under which particular pesticide application methods may be used.

A number of public-interest research groups have also taken up the issue. Pesticide Action Network North America, Environmental Working Group, and Californians for Pesticide Reform are but three of the groups that have introduced campaigns to raise the visibility of the problem of pesticide drift and to argue for solutions that are more critical and substantial than those proposed by policymakers (Gray et al., 2001; Kegley et al., 2003; Reeves et al., 2002).

Furthermore, a variety of grassroots, community-based organizations have formed in response to local-level impacts of pesticide drift. Examples include Community and Children's Advocates Against Pesticide Poisoning (CCAAPP) in Ventura County, Farm Without Harm in Monterey County, Comité Para Bienestar de Earlimart in Tulare County, and the No Spray Action Network in Sonoma County (see CCAAPP, 2003; FWH, 2003; Anda, 2003a; NSAN, 2003).

In this chapter, I illustrate the ways in which policymakers and the mainstream media tend to frame the problem of pesticide drift—namely, as a series of isolated accidents in which pesticides drift through the air into nearby non-farm spaces, causing people to become seriously ill during or immediately after application. I will show that limiting the framing of the pesticide drift problem to the realm of "accident" in residential areas misrepresents the true scope of the problem. Namely, this conceptualization renders invisible and legitimizes exposures endured by farm laborers and excludes consideration of the "non-crisis," everyday exposures to pesticides endured by millions of Californians.

I also illustrate, on the other hand, that the problem of pesticide drift is currently being reframed in alternative spaces as an issue that transcends the few accidents that receive media attention. In particular, many researchers and activists are actively reframing pesticide drift as an air pollution problem. In contrast with the mainstream conceptualizations of the

problem, this strategy brings out and problematizes the everyday nature of pesticide drift and creates an opportunity for making farm labor and daily pesticide exposures visible.

Mapping the Pesticide Drift Problem and Debates

Mainstream conceptualizations of pesticide drift render invisible some of the most significant impacts of pesticide pollution. These contradictions and invisibilities can be illustrated geographically by comparing (1) the spatial distribution of the problem throughout the state with (2) the spatial distribution of public attention to the problem. I illustrate in this section that while the problem of pesticide drift in California follows a particular pattern, that pattern contrasts significantly with the geographical dimensions of attention to the issue in the mainstream media.

Pesticide Action Network (PAN) created detailed maps illustrating the spatial distribution of pesticide use across the state of California, and these maps are available on the website of Californians for Pesticide reform (Osborne et al., 2003; see <http://www.pesticidereform.org/damap.html>). These maps were derived from the State of California's Department of Pesticide Regulation (DPR) Pesticide Use Report (PUR) data and illustrate the distribution of agricultural pesticide use intensity (measured in pounds of active ingredients applied per square mile) across the state.

As illustrated, pesticide use intensity in general is the highest in the regions of greatest agricultural production: the Central Valley, the Salinas Valley, and the Imperial Valley. In addition, the State of California tracks pesticide exposure incidents through its Pesticide Illness Surveillance Program (PISP). PISP records indicate that the counties with the highest number of individuals poisoned by agricultural pesticides between 1997 and 2000 were Fresno, Kern, Kings, Tulare, and Monterey (see Table 13.1 below). This correlation is not surprising, given that these counties also lead the state in acreage devoted to agriculture and in pesticide use intensity.

However, while pesticide use and reported drift incidents follow one pattern (illustrated by the above map), public debate about pesticide drift follows a different, contradictory pattern. An analysis of media attention to pesticide drift is one way to compare the local public framings of this issue. A brief survey of newspaper articles on pesticide drift in California revealed spatially significant differences in media attention to and framing

TABLE 13.1
Pesticide Use and Drift Data for Selected California Counties^a

County	# Reported Poisoning Cases (1997-2000) ^b	Acrees Planted (# acres) ^c	Intensity of Pesticide Use lbs. chem. / acres planted ^d
Tulare	427	685,593	25.67
Fresno	221	1,331,327	29.27
Monterey	178	374,714	26.19
Kern	175	834,867	26.84
Kings	96	485,875	9.85
San Joaquin	73	472,362	28.59
Riverside	68	266,113	13.38
Madera	63	294,383	39.12
Merced	60	456,969	19.24
Imperial	57	570,787	15.97
Ventura	52	218,324	27.73
Stanislaus	42	306,439	22.15
Colusa	24	253,144	7.85
Santa Barbara	24	149,745	25.87
Yolo	21	274,247	11.39
Sacramento	21	128,619	30.56
Solano	14	156,845	10.39
Sutter	12	229,472	15.13
Glenn	12	200,093	13.06

^a Reported Poisoning Cases data from DPR Pesticide Illness Surveillance Program (cited in Reeves et al., 2002) and represent agriculturally related poisonings; 44% of these cases are due to drift.

^b Acres Planted data and Intensity of Pesticide Use data from Kegley et al., 2000, pp. 70-72; see also Appendix 1 for explanation of methodology. Intensity of Pesticide Use figures represent gross pounds of active ingredients per acre planted in 1998.

of the issue.⁴ Specifically, the problem of pesticide drift is underrepresented in the inland areas of California. Only 26 percent of the collected articles addressed the problem of drift in the Central Valley. By contrast, 74 percent of articles on pesticide drift focused on the problem as it exists in more urban, coastal counties such as Ventura, Santa Barbara, Monterey, Santa Cruz, Sonoma, and Napa counties. Hence, although the problem of drift is most acute in the Central Valley, that region is relatively invisible to public attention to the problem.⁵ Instead, attention to pesticide drift is clustered in the coastal and urban areas.

Additionally, most of the articles surveyed frame the pesticide drift problem as a series of "accidents," rather than as an air pollution problem.

Most of the few articles pertaining to drift in the Central Valley are limited to details of specific accidents; only *one* article was found to connect the problem of pesticide drift to the larger problem of air pollution in that region. In contrast, in the coastal areas, at least 50 percent of the articles utilized a discussion of a particular drift incident as a springboard for engaging in broader, more critical analysis of the adverse environmental and public health impacts of pesticides.

Current demographic trends in California may contribute to the shifting of public conceptualizations about the pesticide drift problem and therefore account for some of this variation. Increasing numbers of California residents are living in close proximity to pesticide-intensive farms and are raising concerns about the environmental and public health impacts of agricultural pesticide use (Coppock and Krieth, 1996; Sokolow and Medvitz, 1999). In coastal areas, these new rural residents are unlikely to work in agriculture, and they possess considerable social and political power and increasingly question the notion that pesticide drift is a tolerable or "natural" consequence of agricultural production. These demographic changes therefore contribute to increasing scrutiny of (and public debate about) the everyday presence of toxic chemicals in those regions of California.

As these demographic trends and pressures contribute to changes in public concern, media attention to drift in the coastal counties improves upon the accident-based discourse of the Central Valley articles. However, most of the coastal articles are still fairly constituency-based (for instance, focusing on effects of pesticide drift on children in schools, or on amphibians in the Sierras). Furthermore, only 18 percent of articles surveyed made any mention of farm workers. That is, in spite of workers' position as the group most intensively and consistently affected by pesticide drift, they have been quite thoroughly sidelined in public attention to the issue.

The significance of these exclusions from the problem framing should not be underestimated; by sidelining the Central Valley, farm laborers, and the conditions of farm work, these framings misrepresent the problem, tether the issue to the realm of "accident," and abstract pesticide drift from its everyday impact as an air pollution problem. As noted, pesticide drift and other types of air pollution are extremely severe in the Central Valley. Furthermore, drift incidents in the Central Valley frequently include very serious and explicit social injustices; when responding to large-scale drift incidents in Tulare County in 1999 and 2002, emergency crews failed to

protect residents, mistreated and demoralized affected individuals, and dismissed their claims about the incident (DeAnda, 2003a). Additionally, media attention has focused almost exclusively on the occasional effects of pesticide drift on residents living in the coastal areas. Such characterizations privilege the health of residents over the health of workers, thereby obscuring the spaces in which people's bodies are affected most intensively on a regular basis. These framings inaccurately give the impression that pesticide drift is typified by the coastal anomalies that receive the most media attention and therefore abstract pesticide drift from its role as a daily air pollutant.

Accidents and Invisibilities

The origins of these invisibilities and contradictions are subtle, overlapping, and deeply rooted in the history of California's agricultural economy. While a thorough analysis of these explanations is beyond the scope of this chapter, a brief analysis of how the issue is typically framed helps explain the fragmented and insufficient attention to the problem of pesticide drift.

As described, policymakers and the mainstream media have tended to frame the problem of pesticide drift as a series of isolated incidents in which pesticides accidentally drift away from a farm and into another social space (such as a residential area or schoolyard). However, by limiting pesticide drift to the realm of isolated accidents, this discourse renders invisible the everyday nature of the problem, thereby effectively decoupling pesticide drift from its role in the larger problem of air pollution (for further discussion of "normal accidents," see Rajan, 1999; and Perrow, 1999). Indeed, the U.S. EPA explicitly excludes consideration of most types of drift, thereby removing them from the scope of policy, as illustrated in the following definition:

EPA defines spray drift as the physical movement of a pesticide through air at the time of application or soon thereafter, to any site other than that intended for application (often referred to as off-target). EPA does not include in its definition the movement of pesticides to off-target sites caused by erosion, migration, volatility, or contaminated soil particles that are wind-blown after application. (U.S. EPA, 2002)

These mainstream conceptualizations of the problem limit drift incidents to residential or other off-farm areas, thereby removing workers from the debates. These definitions also suggest that official re-entry intervals (post-application intervals in which workers are not allowed to enter a field) are sufficient for protecting worker health and safety. However, new air monitoring data conducted by Californians for Pesticide Reform suggest that the established intervals do not always effectively protect the health of workers or nearby residents (Kegley et al., 2003). Farm workers' invisibility and exclusion from the problem's definition is troubling, because the intensity and consistency of exposure to toxins in the workplace frequently make workers the primary victims of chemical technologies; the workplace is also therefore the space in which researchers will most accurately understand the human health impacts of toxic chemicals (Brown and Froines, 1993).⁶ Removing this important space from debates about pesticide drift therefore misrepresents the problem and suggests limited solutions. Pesticide drift debates cannot effectively confront the problem of pesticide poisonings if the actors *most* at risk are hidden from view and sidelined in discussion; farm workers' invisibility threatens the visibility of drift as an air pollution problem.

Framing the issue as a series of accidents, instead of as an air pollution problem, renders invisible the non-crisis, low-level exposures that have become so "naturalized" in agricultural workplaces and communities. These everyday circumstances are the events that no one would notice or report, for they include very subtle experiences, such as workers' dermal exposures in the field; workers' respiration of airborne pesticides; the transport of chemicals on clothing into workers' homes, and therefore to their spouses and children; and the low-level, unnoticeable aerial drift within and beyond the borders of agricultural communities. This is particularly problematic because public health research increasingly shows that these cumulative exposures to low levels of multiple environmental toxins cause some of the greatest long-term damage to the human body (Colburn et al., 1997; Moses, 2002; Solomon, 2000). As long as pesticide drift is tethered to the realm of "accident" or crisis, the everyday exposures remain invisible and normalized.

Additionally, the "accident" discourse artificially abstracts the poisonings from their institutional, structural supports. The structure of the agricultural labor market has historically posed special challenges to efforts aimed at increasing the visibility of problems endured by farm laborers. Carey McWilliams (1935) discussed the cyclical processes by which

growers in California throughout the nineteenth and early twentieth centuries supported the development of new, profitable agricultural commodities by racializing and exploiting the most vulnerable ethnic-based migrant labor groups. As Carol Zabin, Michael Kearney, Philip Martin, and other researchers have shown, this process continues today—the Mixtecs of southern Mexico are the new "lowest group on the totem pole" and now comprise 5 to 10 percent of California's agricultural labor force. Their introduction unintentionally contributes to the further stratification of a labor force already divided along lines of legal status and nationality. Most important, these divisions further complicate the work of unions and other organizing efforts aimed at increasing the visibility of pesticide exposure issues faced by farm worker communities (see Kearney and Nagen-gast, 1989; Martin, 2001; Zabin, 1992; and Zabin et al., 1993).

This mainstream framing of pesticide drift portrays the problem as a strictly technical one, somehow distinct from socioeconomic issues. However, as many labor researchers have argued, there is a significant relationship between technology and justice in the workplace. Elaine Bernard (1993), William Friedland (1981), Margaret FitzSimmons (1990), and Miriam Wells (1996) have all argued persuasively that workplace structure and technology decisions are neither benign nor objective but, rather, are socially constructed processes imbued with ideology, power, and normative determinations of the distribution of risks.⁷ Technological decisions are therefore not simply a function of technical efficiency but also are products of political, social, and financial power.

Furthermore, such discourse excludes discussion of agricultural pest management paradigms that prohibit the use of toxic synthetic pesticides (such as organic agriculture) or that permit only the use of least-toxic pesticides—and only as a last resort (such as Integrated Pest Management and Biointensive Pest Management; see, for example, Altieri, 1995; Benbrook, 1996; Gliessman, 1998).

Situating pesticide drift in the space of accident also obscures the inadequacies of the current pesticide risk assessment processes. While risk assessment can determine approximate lethal doses of immediate exposure, the system is unable to determine with any reasonable degree of certainty the synergistic impacts of exposure to low levels of multiple toxins over long periods of time (Brown et al., 2000; Thornton, 2000). However, as previously noted, these are precisely the types of exposure that characterize the agricultural workplace and communities and that pose some of the most significant threats to human health.

These limited conceptualizations of the problem therefore help explain the narrow scope of solutions that policymakers have proposed. Changes in labeling laws and restrictions on application methods at most will require growers to make minor adjustments to current practices, so as to reduce the incidence of accidents during or immediately following application. However, these technical adjustment recommendations will not reduce post-application drift, in spite of the fact that the bulk of off-site movement of pesticides occurs as the chemicals volatilize after application (Kegley et al., 2003). Not surprisingly, these policy recommendations make no indication that pesticide drift is an everyday problem impacting on the health and safety of all people in agricultural regions. Calls for increased enforcement of current regulations (the solution ubiquitously proposed by agency representatives), while necessary and overdue, perpetuate the illusion that drift is limited to accidental occurrences and fail to make visible the true nature of the problem.

It is important to note that some past efforts to define pesticide problems have suffered similar limitations. In *The Death of Ramon Gonzalez* (1990), Angus Wright shows that consumer-driven concerns in the 1960s and 1970s about pesticide residues on food prompted policymakers to implement restrictions on highly persistent organochlorine pesticides (such as DDT). In turn, these regulations prompted growers to shift to pesticides that were less persistent but that posed a much greater threat to people and wildlife in and near the site of application.

In this way, the solution for consumers became the problem for other, less visible people (such as workers). To reduce the incidence of residues on food crops, policymakers' limited definition of the problem transformed the social and environmental injustices of DDT into a technical issue. Thus the conditions of work and poisonings near the site of production continued to be rendered invisible.

Wright's work illustrates the importance of analyzing the conflicting ways in which different actors define the problem. Limited-scope technical solutions may provide relief for some people but may not provide a thorough or effective resolution to the problem.

Connecting Drift and Air Pollution

As long as the problem of pesticide drift is conceived as a series of accidents, the everyday exposures to pesticides remain invisible and natural-

ized. Alternatively, framing drift as an air pollution issue problematizes those everyday exposures and elevates their significance.

Indeed, some researchers and activists in California are starting to reframe the pesticide drift issue as an air pollution problem.⁸ For example, in response to a serious drift incident that occurred in Tulare County in 1999, the United Farm Workers (UFW) joined forces with Californians for Pesticide Reform, the Center for Race, Poverty and the Environment, and several local community action groups.⁹ These groups initially collaborated in order to protest the inhumane treatment of affected residents by local emergency response crews, and they are now actively engaged in reframing pesticide drift as an air pollution problem. At a conference on pesticide drift in February 2003, David Chatfield (representing Californians for Pesticide Reform) made the following statement in his opening comments: "We need to define the drift problem as an air pollution problem" (Chatfield 2003). Chatfield emphasized the importance of augmenting current attention to the acute symptoms of exposure with increased attention to asthma and other subtle, chronic effects of pesticides. Chatfield also suggested that conceptualizing pesticide drift as a pollution problem would highlight the ways in which all Californians are exposed. In this way, CPR's work unleashes pesticide drift from the confines of "accident" discourse and makes pesticide drift's role in the severe air pollution problems in California visible. This shift in meanings echoes the developments noted in other chapters in this book that discuss the emergence of air pollution as a visible phenomenon (for example, see the chapter by Harold Platt in this volume).

Californians for Pesticide Reform is not the only organization working to reframe pesticide drift as an air pollution problem. Comité Para el Bienestar de Earlimart is a grassroots community-based organization in Tulare County that formed in response to the Earlimart drift incident in 1999. Teresa DeAnda, president of the group, argues that pesticides are a central component of air pollution and that pesticide drift is a health and safety tragedy affecting all people in and near the San Joaquin Valley on a daily basis (for example, see DeAnda, 2000a, 2000b).

Re-making the meaning of drift in this way indicates that the problem is no longer bound to the realm of crisis or to the off-farm movement of chemicals. By framing the issue as one that affects all members of a community, this alliance brings workers back into the debates and therefore avoids some of the constituency-based problems caused by limited problem definitions that have hampered progress in past pesticide policy

~ divide + compare?

debates. Most important, these efforts have made progress toward unveiling the everyday nature of the problem.

By elevating awareness of the everyday exposures to pesticides, this recent "air pollution turn" may assist in democratizing the pesticide drift debates. When limited to the spheres of accidents, risk assessment, and regulation enforcement, discussion of toxics issues can be monopolized by experts and made inaccessible to the public. In these situations, lay knowledge is frequently sidelined and disregarded in favor of "expert" knowledge; claims about expertise, however, protect the assessment and allocation of risk from democratic discussion and obscure the ethical and value-laden circumstances of environmental issues (see Brown, 2000; Brown et al., 2000; and Brown et al., in this volume). In this way, the pesticide drift problem reflects the issues unveiled in other community anti-toxics movements such as those that emerged from the environmental tragedies at Love Canal and Woburn, Massachusetts (see Brown and Mikkelsen, 1997). Phil Brown shows that in-depth examinations of such debates raise questions about the distribution of risks associated with chemical technologies and about the appropriate spaces for determining acceptable risk levels. Increased contestation of boundaries suggests that environmental decisionmaking may benefit from increased democratic participation (Brown, 2000). Indeed, grassroots anti-drift organizations are actively confronting the monopolization of knowledge about local environmental issues by experts. As activist, drift victim, and Earlimart resident Teresa DeAnda argued at the recent CPR-sponsored Pesticide Drift Conference, "We need to educate the experts. . . . We are the experts! . . . We know what we're feeling and what we're going through" (DeAnda, 2003b).

The shift toward conceptualizing drift as an air pollution problem, therefore, implies that different political alliances can be made around these different meanings. That is, framing pesticide drift as an air pollution problem problematizes everyday exposures and, in turn, creates an opportunity for illustrating the connections between the various groups affected by pesticide pollution.

In this way, the innovative work on drift echoes many of the trends and innovative strategies that comprise the "multi-partner, multi-organizational, intersectoral" approach to linking air pollution and asthma illustrated by Phil Brown and his colleagues (in this volume). These connections are important, because engaging people in the community who are at risk with those people who are *most* at risk (in this case, agricultural

workers) can raise the visibility of the conditions of farm labor, illustrate the intersection of labor and non-labor issues, and therefore contribute to solutions to the pesticide drift problem that are more comprehensive and socially just than those being proposed by state and federal agencies.

In recent history, connections have frequently been made between various groups affected by a common environmental problem. Laura Pulido (1996) shows that farm laborers (through the *United Farm Workers*) were responsible for some of the first pesticide reporting laws. In the late 1960s, the UFW used the tragedy of farm worker poisonings as part of a larger effort to improve farm workers' lives from all angles. These struggles were successful in large part because of the connections that the UFW made with other groups—in particular, with consumers and with people concerned about the risks that pesticides pose to residents of agricultural communities.

In spite of such achievements, many of the important connections that were established in the 1970s have withered in recent years. Patricia Allen and her colleagues (2003) note that although early alternative food initiatives developed strong associations with farm workers and shared a structural critique of existing agricultural practices, racism, and poverty, the neoliberal revolution of the 1980s and the rise of the political culture of *entrepreneurialism* weakened the connections between the civil rights movement, labor justice organizations, and alternative food movements.

Reframing pesticide drift as an air pollution problem presents a temporary opportunity for overcoming those lost connections and making labor and everyday exposures more visible. Making labor visible will be a critical component of this process; making the agricultural workplace safer for farm workers will necessarily reduce the impact of pesticides on other residents of agricultural communities. This conceptual shift in the meaning of pesticide drift from accident to air pollution shows that drift damages the health of all people and wildlife in and near pesticide-intensive agricultural regions on a daily basis; highlights the intersections of various groups affected by pesticide pollution (i.e., children in schools, residents of farm communities, farm workers, amphibians, birds, beneficial insects, etc.); and creates space for new alliances that can strengthen the collective voice of hitherto distinct interests.

Conclusion

In this chapter, I have described the problem of pesticide drift and have shown that recent debates about the problem tend to conceptualize drift as a series of isolated accidents in which pesticides travel away from the site of production and cause harm to people in nearby off-farm spaces. I have argued that by limiting pesticide drift to the realm of "accident," these mainstream framings obscure the everyday nature of the problem and promote narrow and inadequate policy solutions. I have also shown, alternatively, that some activists and researchers are actively engaged in reframing pesticide drift as an air pollution problem. This shift in the framing of the issue brings out and problematizes the everyday nature of the problem, thereby creating an opportunity to unveil the invisible everyday pesticide exposures historically and currently endured by all residents of California's agricultural regions. Effective solutions to the problem of pesticide drift will ultimately depend on the visibility of all spaces, actors, and exposures and on the reconceptualization of drift as pollution in public and policy discourse.

NOTES

1. Most effects that are reported are the acute health impacts that are experienced immediately after exposure—these include nausea, skin/eye irritation, and difficulty with breathing. However, there are numerous chronic health impacts that may not surface for years but pose significant detrimental consequences to human health. Chronic health effects refer to a chemical's long-term impacts on human health; these are obviously more difficult to determine precisely, typically take years to become evident, and are generally more severe than acute impacts. Known chronic health effects of agricultural pesticides include numerous types of cancer, birth defects, infertility, sterility, metabolic disorders, impaired neurological development, chronic fatigue syndrome, and behavioral abnormalities (see Solomon, 2000; Moses et al., 1993).
2. Californians for Pesticide Reform used DPR data to construct this map; this statewide map and county-level maps of greater resolution are available at <http://www.pesticidereform.org/datamaps/maps.html>.
3. This table has been limited to those counties in which at least ten cases of pesticide poisoning occurred between 1997 and 2000.
4. Newspapers surveyed included *Bakersfield Californian*, *Sacramento Bee*,

Fresno Bee, *San Francisco Chronicle*, *Ventura County Star*, and *Los Angeles Times*. Articles were included in the survey if they were published between January 1, 1998, and February 28, 2003, and if the words "pesticide" and "drift" occurred within five words of each other within the article. Of the thirty-nine articles that fit these parameters, ten dealt with drift in the Central Valley and twenty-nine dealt with drift in coastal counties.

5. The American Lung Association rates the ozone pollution of all counties in the nation and notes that California's Central Valley counties consistently top the charts. California has the five most ozone-polluted counties in the United States: "San Bernardino has been number 1 three years in a row; Kern, comes in at number 2 this year, after claiming the number 3 spot for the previous two years; Fresno moves up to number 3 after two years as the fourth-most polluted county; Riverside is number 4, after two years as the second-most polluted county; and Tulare, number five for the second year in a row. There is one bright spot on the California horizon: Salinas, which continues to rank among the least ozone-polluted cities in the nation" (ALA, 2003). In addition, as indicated in Table 13.1, nine of the top ten counties in terms of numbers of pesticide poisoning victims in recent years are located in the Central Valley.

6. Numerous researchers have provided documentation for the argument that farm workers and their families are not adequately protected from the health risks associated with exposure to agricultural pesticides (see, for example, Barnett, 1989; CHAMACOS, 2002; Mills and Kwong, 2001; Moses et al., 1993; Pulido, 1996; Reeves et al., 2002; Villarejo et al., 2000).

7. In *The Lie of the Land*, Don Mitchell similarly argues that agricultural landscapes in California are socially constructed relations of power: "The production of landscape is . . . a highly mystified, ideological project that seeks to erase the very facts of its (quite social) production" (Mitchell, 1996, p. 6).

8. As discussed at a Drift Conference sponsored by Californians for Pesticide Reform on February 8, 2003, in Fresno, California.

9. Notably, Comité Para Bienestar de Earlimart.

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