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# Environmental Justice and the Role of Criminology: An Analytical Review of 33 Years of Environmental Justice Research

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# Environmental Justice and the Role of Criminology

## An Analytical Review of 33 Years of Environmental Justice Research

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An increasing number of scholars and activists have begun to tackle a variety of issues relevant to environmental justice studies. This study attempts to address the role of criminologists in this domain. The authors examine 425 environmental justice articles in 204 academic journals, representing 18 programs/departments between 1970 and 2003. First, they measure the environmental justice contributions in the literature by academic department or activist affiliation. Second, they identify the major themes in the literature as they have developed and reveal the current and future directions of environmental justice studies. Such themes include the spatial distribution of hazards, social movements, law and public policy, and environmental discrimination. Finally, the authors seek to call attention to the evident linkages between accepted areas of criminological scholarship and environmental justice. From this latter objective, the authors seek to demonstrate how criminology and criminal justice can advance this critical dialogue and social movement.

**Keywords:** *environmental justice; environmental crime; eco-criminology; green criminology; environmental racism*

During the past decade, an increasing number of scholars and activists have tackled issues relevant to environmental justice studies. Traditionally, environmental justice studies have examined the correlation between social demographic characteristics and environmental hazards (Anderton, Anderson, Oakes, & Fraser, 1994; Been, 1995; Bullard, 1990; Stretesky & Lynch, 1999a, 1999b). Unlike many specialty research areas that attract a relatively small number of scholars and disciplines, the topic of environmental justice has drawn academics and activists from such diverse fields as geography, public health/epidemiology, sociology, law, mathematics, statistics, economics, and philosophy, to name only a few.

Despite the varied attention to environmental justice concerns, with few exceptions (Simon, 2000; Stretesky & Lynch, 1999a), a dearth of criminological attention remains. The present study attempts to address this underrepresentation by organizing the environmental justice literature thematically, calling attention to the evident linkages between accepted areas of criminological scholarship and environmental justice. Thus, in part, we seek to call criminologists

and criminal justice scholars to action by demonstrating how this discipline provides the foundation for advancing the environmental justice dialogue and social movement.

Despite the dearth of academic contributions to the environmental literature by criminologists through 2003, it is our contention that criminology has much to contribute to the study of environmental justice. As an entry point, the framework of state-corporate crime can assist scholars in naming and defining the problem of environmental justice and injustice from a uniquely criminological perspective. Criminologists can play a vital role in educating other scholars, activists, citizens, and most critically, public policy makers about the harmful and frequently illegal foundation of environmental concerns. Criminologists should consider responding to various types of antienvironmental/anticitizen policies by challenging public officials who fail to police corporate polluters. Arenas in which criminologists can contribute to this body of thought are elaborated after an examination of the history of environmental justice research as well as current themes in the literature.

### **Defining Environmental Justice**

Although there is no singular definition of environmental justice, a key legalistic classification laid out by the Environmental Protection Agency (EPA, Office of Federal Activities, 1998) describes environmental justice as

the fair treatment and meaningful involvement of all people regardless of race, ethnicity, income, national origin, or educational level with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate burden of the negative human health or environmental impacts of pollution or other environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. (p. 2)

Environmental justice scholars and activists tend to conceptualize environmental justice in broader terms than the traditional or legalistic approach of the EPA and other government officials. Environmental scholars such as Bullard (1990) and Bryant (1995) maintain that environmental justice encompasses more than environmental equity or the equal application of environmental laws. Such scholars assert that environmental justice refers to a host of cultural values and norms, behaviors, regulations, and public policies that support sustainable communities and safe, nurturing, and productive environments. As such, environmental justice includes livable wages and safe jobs, quality schools and recreation, decent housing and adequate health care, democratic decision making and personal empowerment, and communities free of violence, drugs, and poverty (Bryant, 1995).

Related to the concepts of environmental equity and environmental justice is the concept of environmental racism. Environmental racism, a term coined by former NAACP director Benjamin Chavez, refers to the institutionalized practices of government or corporate decision makers who target communities for least desirable land uses, resulting in the unequal burden of toxic and hazardous waste on communities of color. Environmental racism violates the prohibition against unequal protection of toxic and hazardous waste exposure and the systematic omission of racial and ethnic minorities from environmental decisions affecting their communities. Environmental racism may be the result of intentional siting of facilities

by corporations, market mechanisms, decisions to site where there is lower political resistance, or a combination thereof (Bryant, 1995). These two notions are intertwined in any discussion of environmental justice.

In his 2002 award-winning book, Pellow elaborates a framework of environmental justice that includes the historical evolution of environmental racism and an understanding of the structures in which this occurs, the impact of stakeholders, the role of stratification in environmental conflicts, and the decreased ability of subordinate groups in society to shape environmental justice struggles. Pellow's framework is a major improvement in that it allows potential victims to be considered active agents in a process whereby stakeholders are viewed as complex rather than merely the agents uniformly imposing their will on the least powerful. Specifically, the forces driving environmental racism are

the quest for political, cultural, psychological, social, and economic dominance and security. Those racial, class, and stakeholder groups with the ability, the power, and the resources to achieve such dominance and security do so at the expense of the less powerful. When different stakeholders struggle for access to valuable resources within the political economy, the benefits and costs of those resources become distributed unevenly. (Pellow, 2002, p. 164)

This cannot be comprehended, however, without an examination of the historical evolution and changing application of environmental racism.

## **A Brief History of Environmental Justice Legislation in the United States**

Born out of the civil rights movement of the 1960s and 1970s, the environmental justice movement was one of the most successful movements of its time and continues to influence both environmental discourse and national public policy on civil rights and the environment (Lester, Allen, & Hill, 2001). One of the first federal documents to address inequities in American public life was the Civil Rights Act of 1964, which barred discrimination in a variety of areas, including public facilities, housing, employment, lending, education, and federally assisted programs. The Fair Housing Act of 1968 addressed further the importance of nondiscriminatory practices with regard to rental and property sales.

Although the majority of environmental justice legislation passed in the 1960s was more closely aligned with civil rights than specific environmental protection, President Nixon's National Environmental Policy Act (NEPA) of 1969 and subsequent Council on Environmental Quality (CEQ) became one of the first efforts to address the state of the environment while taking into account its specific impact on inner-city residents. The CEQ specifically explored inadequate housing, high crime rates, poor health, unsanitary conditions, inadequate education and recreation, and drug addiction (Lester et al., 2001). Although antitoxic legislation was addressed in NEPA and the Solid Waste Disposal Act of 1965, it was not until the passage of the Federal Resource Conservation and Recovery Act (RCRA) of 1976 that hazardous waste dumping became a criminal offense (Situ & Emmons, 2000).

The RCRA and subsequent amendments authorize the EPA to safeguard human life and the natural environment from improper management and disposal of hazardous waste. Transfer of hazardous waste to permit-approved, off-site treatment, storage, and disposal

(TSD) facilities is tightly planned. The RCRA requires that all hazardous waste be tested, recorded, and tracked carefully from cradle to grave. Commercial TSD facilities are the last link in the cradle-to-grave hazardous waste planning system. TSD facilities are environmentally risky and locally unwanted technologies. In neighborhoods sited for TSD facilities, there is a real and perceived decline in physical well-being, an increase in housing market instability, and an increase in social psychologies of dread (Capek, 1992). Public opinion studies reveal that citizens and city planners want the benefits of scientific treatment, storage, and disposal of hazardous waste but very few are willing to take on the burden directly in the form of a facility in their community (CEQ, 1980).

Policy initiatives such as the RCRA, passed during the so-called environmental decade from 1970 to 1980 (as outlined in Table 1), granted the EPA the legal authority to conduct response, removal, or remedial action to diminish the toxic dangers in a site or eliminate permanently the threat of such sites. Most notable was that the Comprehensive Environmental Response, Compensation, and Liability Act in 1980 created the first hazardous substance superfund to help clean up the nation's most polluted sites (Situ & Emmons, 2000). This trust fund (comprising industry and environmental taxes) has been used to clean up approximately 30% of the 1,551 sites on the EPA's national priority list, with corporations themselves paying to clean up the other 70%. Under pressure from the chemical and oil industries, Congress did not renew the tax on polluters in 1995, and cleanup money since has come entirely from taxpayers (Situ & Emmons, 2000).

The generally acknowledged progenitor of environmental justice research is sociologist Robert D. Bullard. In 1983, Robert Bullard, at the urging of his wife, Linda McKeever, conducted a case study of waste disposal practices in Houston, Texas. Bullard picked Houston for its racial diversity and hazardous waste disposal practices that seemingly targeted African American communities. Bullard's evidence pointed to a new and gruesome form of inequality—residential proximity to human and industrial waste. Bullard (1983) discovered that all 5 municipal landfills were located in Black neighborhoods; of the city's 8 garbage incinerators, 4 were located in Black communities, and 1 was located in a mostly Hispanic community; and all the city's mini-incinerators were located in predominantly minority communities.

Bullard (1983) theorized this environmental inequity as a failure of municipal planning (or lack thereof) and as federal government ambivalence to the enforcement of environmental protections. Bullard strongly rejected the argument that such environmental inequity could be the product of residential choice, with minorities trading environmental quality for affordable housing. For Bullard, the evidence was an outcropping of institutional racism. He concluded passionately that Houston typified an insidious national problem. Bullard's Houston case study has been very influential and has been credited with spawning a new line of social scientific research, as well as energizing civil rights and grassroots environmental justice activists, and stirring policy makers and elected officials to action. Table 2 outlines the chronology of major events in the environmental justice movement beginning in 1971.

Shortly after Bullard (1983), a 1983 General Accounting Office (GAO) study was undertaken at the urging of Walter Fauntroy, chair of the Congressional Black Caucus, to examine the factors of race and economic class in the distribution of hazardous facilities in the EPA's Region IV. Researchers used secondary data from the U.S. Census Bureau and the

**Table 1**  
**Federal Environmental Legislation from 1970 to 1980**

Year	Federal Legislation
1970	Estuary Protection Act
1970	National Mining and Minerals Act
1970	Clean Air Act
1970	Occupational Safety and Health Act
1970	Resource Recovery Act
1970	Pollution Prevention Packaging Act
1971	Lead-Based Paint Poisoning Prevention Act
1972	Water Pollution Control Act
1972	Marine Protection, Research and Sanctuaries Act
1972	Coastal Zone Management Act
1972	Home Control Act
1972	Federal Insecticide, Fungicide, and Rodenticide Act Amendments
1972	Parks and Waterways Safety Act
1972	Marine Mammal Protection Act
1972	Ports and Safe Waterway Act
1972	Clean Water Act
1973	Endangered Species Act
1974	Deep Water Port Act
1974	Safe Drinking Water Act
1974	Energy Supply and Environmental Coordination Act
1974	Federal Non-Nuclear Research and Development Act
1974	Forest and Rangeland Renewable Resources Planning Act
1974	Archeological and Historic Preservation Act
1974	Solar Energy Research, Development and Demonstration Act
1974	Shoreline Erosion Control Demonstration Act
1975	Eastern Wilderness Act
1975	Hazardous Materials Transportation Act
1976	Toxic Substances Control Act
1976	Federal Land Policy and Management Act
1976	Resource Conservation and Recovery Act
1976	Energy Policy and Conservation Act
1976	Forest Management Act
1977	Clean Air Act Amendments
1977	Pure Water Act
1977	Surface Mining Control and Reclamation Act
1977	Soil and Water Resources Conservation Act
1978	Endangered Species Act Amendments
1978	Energy Tax Act
1978	Outer Continental Shelf Lands Act Amendments
1978	Public Utilities Regulatory Policy Act
1978	Uranium Mill-Tailings Radiation Control Act
1978	National Parks Service Act Amendments
1979	Archeological Resources Protection Act
1979	Hazardous Liquid Pipeline Safety Act
1980	Comprehensive Environmental Response Compensation and Liability Act
1980	Alaska National Interest Lands Conservation Act
1980	Low-Level Radioactive Waste Policy Act

*(continued)*

**Table 1 (continued)**

Year	Federal Legislation
1980	Non-Game Wildlife Act
1980	Farmland Protection Policy Act
1980	Asbestos School Hazard Detection and Control Act

Source: Environmental Protection Agency, National Oceanic and Atmospheric Administration, National Park Service, National Forest Service, and Department of the Interior.

EPA and conducted telephone interviews with various stakeholders. Results indicated that African Americans were burdened disproportionately by hazardous waste. In 3 of the 4 hazardous waste locations examined in the EPA's Region IV, African Americans constituted a demographic majority. The study also suggested that economic class played a role in the distribution of environmental burdens. Rates of poverty increased as one moved closer to the facility spatially. In fact, the relationship appeared perfectly linear. Poverty levels ranged from 26% to 42%, almost 3 times the region's average (GAO, 1983). Although there are some methodological problems with this study (e.g., the relatively small sample size and circumscribed geography), the study had an enormous political effect on advancing the environmental justice movement.

Four years after the GAO study, the United Church of Christ's (UCC, 1987) Commission for Racial Justice published the first national, cross-sectional study of 415 commercial hazardous waste facilities in the United States. Zip code-level population and housing data were obtained from the U.S. Census Bureau, and data on commercial TSD facilities were gathered from the Environmental Services Directory and the EPA's Hazardous Waste Data Management System. The study compared host and nonhost communities to isolate the independent effects of race in siting decisions. Researchers found that communities with the highest percentage of minorities had the highest concentration of hazardous facilities. This pattern of environmental racism held nationally. Statistical controls did not diminish the relationship between race and environmental risk. In fact, "race proved to be the most significant among variables tested in association with the location of commercial hazardous facilities" (UCC, 1987, p. xiii). The UCC study also noted the role of political economic factors in the location of hazardous facilities. Commercial operators are motivated by instrumental rationality. They seek inexpensive land, access to raw materials and skilled labor, and politically compliant neighborhoods. Such factors increase profitability and reduce potential transaction costs. These factors cluster in minority communities. The combination of institutional racism and political economic disadvantage makes minority neighborhoods vulnerable to the siting of environmentally suspect land uses. The UCC (1987) study was groundbreaking and attracted the attention of policy makers to potentially disproportionate siting made on the basis of race and introduced the politically powerful concept of environmental racism.

Struggling through a decade of decentralization, deregulation, and laissez-faire environmental politics by the Reagan and Bush administrations, environmental justice again emerged as a serious public policy consideration in the early 1990s. Social scientific studies and statements by environmental activists that suggested that TSD facilities were located systematically

**Table 2**  
**Chronology of Major Events in the Environmental Justice Movement**

Year	Event
1971	Council of Environmental Quality reports link between racial discrimination and environmental quality
1982	Warren County, North Carolina, residents protest PCB landfill siting; result is national attention on environmental racism
1983	Robert Bullard publishes groundbreaking case study of waste disposal practices in Houston, Texas
1983	GAO reports that 3 of 4 hazardous facilities in EPA's Region IV are in majority African American communities
1987	UCC Commission for Racial Justice issues report on the distribution of hazardous facilities nationwide
1990	Conference at the University of Michigan releases report called <i>Race and the Incidence of Environmental Hazards</i>
1990	Robert Bullard publishes influential text <i>Dumping in Dixie</i>
1990	Environmental Protection Agency (EPA) creates Environmental Equity Workgroup
1991	First National People of Color Leadership Summit in Washington, D.C., crafts environmental justice principles
1992	EPA releases <i>Environmental Equity: Reducing Risk for All Communities</i>
1992	Environmental Justice Act introduced in Congress by Senators Albert Gore and Congressman John Lewis
1992	EPA establishes Office of Environmental Equity
1993	EPA establishes the National Environmental Justice Advisory Council
1993	Environmental Equal Rights Act introduced to amend the Solid Waste Disposal Act; did not pass
1993	Environmental Health Equity Information Act of 1993 introduced to amend the Comprehensive Environmental Response, Compensation, and Liability Act; did not pass
1994	Symposium of federal agencies, including the National Institute of Environmental Health Sciences on environmental justice
1994	President Clinton issues Executive Order 12898
1994	EPA renames Office of Environmental Equity as Office of Environmental Justice
1994	EPA creates Office of Civil Rights
1994	Interagency Working Group on Environmental Justice established
1995	SADRI at the University of Massachusetts releases study indicating no racial inequity in siting of hazardous waste facilities
1999	Environmental Justice Act of 1999 introduced into U.S. Legislature
2001	Second National People of Color Leadership Summit in Washington, D.C.
2003	EPA establishes environmental justice bibliographic database

Source: Environmental Protection Agency Office of Environmental Equity and Clark Atlanta University's Environmental Justice Office.

Note: PCB = Polychlorinated Biphenyls; GAO = General Accounting Office; UCC = United Church of Christ; SADRI = Social and Demographic Research Institute.

in poor and/or minority communities were so powerful that in 1994, President Clinton signed Executive Order 12898, which directed federal agencies to examine the potential inequity of environmental health policies on those residing in low-income and/or minority neighborhoods. Executive Order 12898 promotes fair treatment of all parties in the development, implementation, and enforcement of all environmental laws, regulations, and



policies. This order intends fair treatment to mean that no group of people, either because of their race or income, are burdened disproportionately by environmental health risks resulting from industrial, municipal, and commercial operations and planning decisions.

## Method

To determine the presence of criminology and criminal justice scholars in the environmental justice literature, three databases were examined for articles on environmental justice from 1970 through 2003. Based on an overview of the environmental justice literature and suggestions from scholars in the field (M. Lynch & P. Stretesky, personal communication, April 1, 2001), the terms *environmental racism*, *environmental justice*, *environmental injustice*, *environmental equity*, *environmental inequality*, *green criminology*, *eco-criminology*, *environmental crime*, and *environmental offenses* were used for the query. One database used for the foundation of the search was the Social Science Citation Index, a multidisciplinary database covering periodical literature of the social sciences commencing in 1970. This database indexes more than 1,725 journals and spans 50 social science disciplines. A second database, Social Science Abstracts, which covers periodical literature of the social sciences beginning in 1983, was used to test the validity of the Social Science Citation Index. Finally, Criminal Justice Abstracts, a database that contains abstracts from more than 500 journals published worldwide and that reflects the rapid growth and increasing globalization of criminology, was used as an additional validity check. After eliminating all cross-referenced materials and all nonarticle materials, such as reviews, editorial material, discussion, notes, and letters, there remained 425 articles for analysis.

Using these articles, we examined the year the article was written and the academic program/department affiliation of the first author as documented in the journal article. Although it would have been desirable to have both the author's academic departmental affiliation as well as her or his disciplinary affiliation, such information was not available through the databases. Nevertheless, there remains a very high correlation between the academic discipline in which one is trained and the department/program with which one is affiliated. In addition, only the first author was recorded to avoid artificially inflating the frequency of a given program. In sum, 18 programs/departments were represented, and there were 425 environmental justice articles published in 204 academic journals.

## Results

The top five academic programs are geography/urban studies ( $n = 90$ ), sociology ( $n = 69$ ), public health/epidemiology ( $n = 44$ ), political science and government ( $n = 43$ ), and law ( $n = 33$ ). These disciplines account for approximately 65% of the total number of environmental justice articles published from 1970 through 2003. The number of articles published in the discipline of criminology/criminal justice represented 2.4% ( $n = 10$ ) of all articles published during the studied time period. Although some criminologists may be housed in sociology departments, thus slightly conflating the prevalence of these two disciplines, it is the contention of the authors after careful review that this is not the situation in most cases.

We were further interested in the discipline of the journals that published most of the environmental justice literature. The top disciplines of journal affiliations are environmental studies ( $n = 97$ ), interdisciplinary social science ( $n = 66$ ), sociology ( $n = 52$ ), geography ( $n = 48$ ), and law ( $n = 36$ ). These disciplinary journal affiliations account for approximately 70% of the total number of environmental justice articles published from 1970 to 2003. The number of articles published in the journals affiliated with criminology/criminal justice represent 6% ( $n = 25$ ) of all articles published during the studied time period.

The prevalence of environmental justice articles published since 1970 has experienced continued upward mobility, with at least 40 articles per year published every year since 1999 (see Figure 1). In fact, 58% of all environmental articles published were between 1999 and 2003. Between 1970 and 1992, there were only 15 articles (3.4%) published in this area. In the early 1990s, the publication of environmental justice-related articles began to increase substantially. At least 50 articles were published in each year for the years 2000 through 2002, with 2003 seeing a decline in publications to 41. Trends in what sort of theme characterized publications have also changed with time. At the start of the 1990s, environmental justice researchers devoted most of their attention to social movements, activism, and environmental concern. Environmental justice scholars analyzed the grievances and mobilization efforts of local communities resisting the placement of undesirable land uses. By the middle of the 1990s, attention shifted toward scientifically examining the linkages between exposure to environmental hazards and the demographic composition of communities. By the end of the 1990s and into the 2000s, scholars began considering the legal and political implications of exposure to environmental dangers.

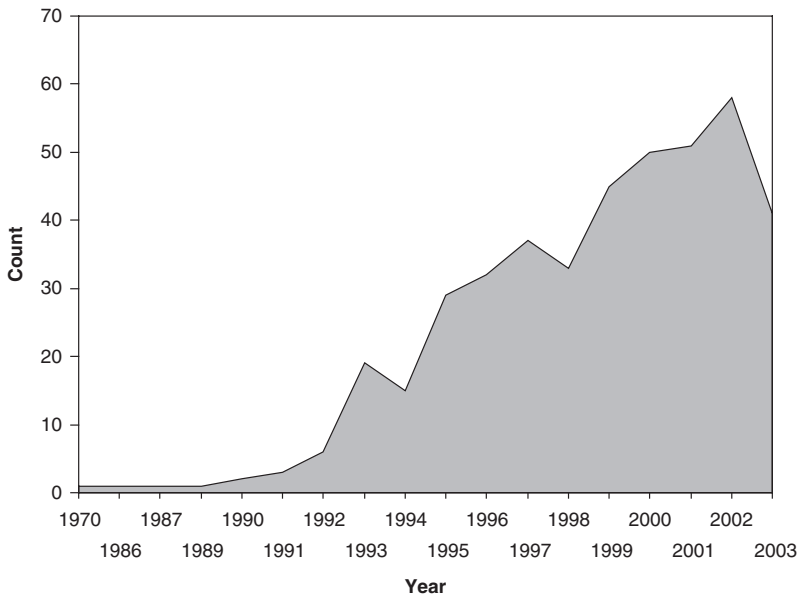
The logic of these shifts in academic interests coincides with the general pattern of moving from the recognition and mobilization of grievances to the scientific validation of grievances and finally to translation of grievances into public policy reforms. At each phase, social scientists have played a critical role in making sense of the environmental justice movement, substantiating and disconfirming certain claims, and adjudicating the political and legal implications of such claims.

## **Thematic Discussion of the Environmental Justice Literature**

Eight themes emerged from the literature as ones addressed repeatedly by environmental justice scholars: spatial distribution of hazards, environmental discrimination, theory and methodology, social movements and concern, public health and risk, environmental law and policy, globalization and sustainability, and philosophies of justice. Each of these themes is elaborated to elucidate potential contributions of criminologists.

Spatial distribution of hazards is a theme that involves the examination of the geographic distribution of toxic release inventory (TRI) facilities, accidental chemical releases, superfund sites, waste disposal facilities, landfills, and other undesirable land uses known to have negative effects on human health. For example, Anderton et al. (1994) studied the distribution of commercial waste treatment facilities across census tract-level data, concluding that market forces and cost minimization determine siting decisions. Pollack and Vittas (1995) matched the spatial distribution of TRI facilities with 1990 census demographic data to find that the location of toxic releases was significantly related to the degree of urbanization,

**Figure 1**  
**Environmental Justice Articles by Year**



population density, housing income, and to a lesser extent, racial composition. Criminologists Stretesky and Lynch (1999a) investigated the spatial distribution of chemical accidents across census tracts in Hillsborough County, Florida, and found that racial and ethnic minorities resided closer to chemical facilities reporting accidents than their White counterparts.

The environmental justice movement and activism have also received substantial attention, focusing on the nature, mobilization efforts, and victories of justice organizations, as well as the political and economic conditions that give rise to environmental grievances. Cable and Benson (1993), for example, explain the rise of grassroots environmental justice organizations as resulting from the contradictory functions of the modern capitalist state. Such scholars maintain that ecological disorganization at the local level stems from the violations of environmental regulations at the national level. For Cable and Benson, because environmental regulations are not enforced strongly, polluters are not sanctioned negatively, and the costs of environmental damage are generally borne by the public, the modern capitalist state can be viewed as more structurally committed to capital accumulation than public welfare and safety. Resisting such disregard, grassroots environmental justice groups tend to arise in this context to pressure state agents to perform their democratic function of enforcing the law and maintaining the conditions of life equally for all persons under its authority (Cable & Benson, 1993).

Despite many improvements during the past three decades with regard to the rules, regulations, evaluation criteria, and enforcement of environmental protection laws, corporations continue to enjoy greater equal protection and due process rights than those afforded ordinary

citizens, making environmental law and public policy an area of concern for scholars (Shelden, 2000). The lobbying of political candidates, Congress, and federal and state regulators have not only contributed to billions of dollars in corporate subsidies, exemptions, and tax havens but have also influenced the creation, monitoring, and enforcement of consumer and environmental protection laws designed to hold corporate offenders accountable for their violations (Simon, 2000). Scholars are also concerned with the revolving door syndrome that allows federal and state regulators to work in the very industries they were once responsible for regulating.

Given this conflict of interest, it is not surprising that the EPA often opposes congressional attempts to pass environmental laws and routinely awards cleanup contracts to the very industries charged with pollution violations (Simon, 2000). Construction of laws may also be influenced by the fact that the federal government is the nation's chief polluter (Situ & Emmons, 2000). Although various agencies of the U.S. government are named as the primary responsible party at 8% of the nation's superfund sites, the GAO estimates that 95% of the 25 million tons of toxic and radioactive waste is exempt from the government's own reporting procedures (Simon, 2000).

Social scientists who focus on environmental discrimination maintain that historically disadvantaged groups, most notably racial and ethnic minorities, the poor, working classes, and women, are burdened disproportionately by environmental hazards. For example, Lavelle and Coyle (1992) studied 200 superfund sites and discovered that the size of the monetary penalty issued by the state, the number and range of scientists hired to conduct analyses of the hazardous site, and the range of solutions proposed by the state varied significantly by the racial composition of the affected neighborhood. Zimmerman (1993) found that race and ethnicity were more strongly associated with the assignment of superfund status for a hazardous waste site than poverty or social class. Similarly, Hird (1993) found that hazardous waste sites were located in counties with a higher than average percentage of minorities even when statistically controlling for income. A variety of studies (Been, 1995; Been & Gupta, 1997; Cutter, 1996) found mixed results, pointing to a likely entanglement of class, race, urban versus rural areas, education, jobs, and market dynamics. Overall, these studies demonstrate that differentials that exist by race/ethnicity and class may arise from factors such as low income, discrimination in housing, lack of sufficient access to resources, and a lack of political power. Tied to the study of disproportionate burdens is the theme of public health and epidemiology in which scholars typically examine the human health consequences of environmental dangers such as increased exposure to pesticides, dioxins, and other air, land, and water pollutants.

Since the inception of environmental justice scholarship, debates on the mechanics of science and the linkages between theory and methods have abounded. Scholars have debated the subject of who controls environmental justice research, how to define environmental justice, problems of causality, the utility of case studies and cross-sectional research, the appropriateness of geographic units of analysis as adequate approximations of community, and the proper environmental hazards to be considered as dependent variables (Bryant, 1995; Cole & Foster, 2001; Lester et al., 2001). Although some researchers use neighborhoods as their unit of analysis (Bullard, 1983; Lavelle & Coyle, 1992), others use census tracts (Been, 1995; GAO, 1983; Stretesky & Lynch, 1999a, 1999b) or zip codes (Hamilton,

1995). The types of noxious facilities examined have varied across studies, including accidental chemical releases (Stretesky & Lynch, 1999a, 1999b), hazardous waste facilities (GAO, 1983; Mohai & Bryant, 1992), superfund sites (Hird, 1993; Stretesky & Hogan, 1998; Zimmerman, 1993), and TRI facilities (Pollack & Vittas, 1995). Although different methodological approaches and units of analysis reveal different elements of the environmental justice debate, a holistic review of findings suggests that a regional pattern of racial discrimination may be more supported than a national pattern. Environmental inequities by race appear to have the same regional logic of other geographically mal-distributed, socially desirable goods (i.e., education, income, voter participation) and undesirable bads (i.e., rates of incarceration, violence, poverty). Goods and bads cluster spatially, and environmental amenities and disamenities seem to dovetail with regional and subregional structures of racial hierarchy and dominance.

Researchers have also examined the philosophical bases of environmental grievances and claims of environmental injustices. Normative terms such as *justice*, *equity*, and *ethics* have been rooted variously in utilitarian, Kantian, and Rawlsian traditions. These philosophical underpinnings provide grounds for objecting to the imposition of environmental risks on individuals and historically oppressed groups. Common models of justice discussed in the literature include the justice of the market place, distributive and procedural forms of justice as they relate to equality and fairness, nonspeciesist justice, and human rights and responsibilities. Although distributive and procedural forms of justice tend to guide much of the empirical literature on environmental justice, environmental philosophers and ethicists tend to employ more complex models that attempt to address more holistic models of justice.

Finally, environmental justice researchers have shown a modest interest in cross-national and globalization issues. As globalization expands, corporate environmental violence becomes of increasing concern to both environmental and civil rights movements, as most large environmental polluters are transnational in scope. Corporate environmental violence includes actual harm and risk of harm inflicted on consumers, workers, and the general public as a result of corporate decisions by corporate executives or managers, from corporate negligence, the quest for profits, or willful violations of health, safety, and environmental laws (Hills, 1987). Industrial countries are responsible for more than 90% of the 400 million metric tons of hazardous waste produced globally each year, and the United States exports a shipment of hazardous waste every 5 minutes each day of the year (Simon, 2000). Furthermore, millions of tons of hazardous wastes are channeled by multinational corporations based in core countries to the underdeveloped nations of Africa, Asia, Latin America, and the Caribbean. The practice of exposing people in other countries to environmental hazards that are generally not permitted in industrialized nations underscores the crux of ecological imperialism and the flight of many multinational corporations to peripheral nations to avoid visibility, regulation, liability, and environmental pollution accountability, all of which directly contributes to human rights and ecological rights abuses (Adeola, 2000).

These eight themes provide the foundation of environmental justice research from 1970 through 2003, and as hypothesized, criminology and criminal justice scholars are not well represented in this academic venue. Of the 18 programs/departments that have published environmental justice articles, criminology and criminal justice published only 10 articles

beginning in 1998 (3 in 1998, 0 in 1999, 3 in 2000, 1 in 2001, 1 in 2002, and 2 in 2003). Although the number of criminal justice and criminology scholars publishing in the area of environmental justice remain woefully low, it is important to note here that some scholars who consider themselves criminologists may be defined as sociologists because of the fact that they are employed in a sociology department. Despite the low prevalence of scholars in a specifically criminology department, a consistent overall upward trend appears to be occurring in several disciplines. In 1970, there was only one environmental justice article published in a law program/department, and it was not until 16 years later that another environmental justice article was published in the social sciences.

## Discussion

This study reveals the underrepresentation of criminology and criminal justice in the environmental justice literature. Additionally, this study uncovers the major themes in environmental justice research as well as the development, present, and future directions of environmental justice literature. Despite the dearth of academic contributions to this date, it is our contention that criminology has much to add to the study of environmental justice. The framework of state-corporate crime can assist criminologists in naming and defining the problem of environmental justice. Coined by Kramer and Michalowski in 1993, state-corporate crime is defined as

illegal or socially injurious actions that occur when one or more institutions of political governance pursue a goal in direct cooperation with one or more institutions of economic production and distribution. (p. 174)

As illustrated, much of what is termed *environmental injustice* can also be considered corporate-state crime, and therefore, criminologists can play an important role in elaborating this element of the environmental justice literature. Specifically, Kramer and Michalowski's (1993) framework of state-corporate crime can be used as the theoretical foundation of case studies examining the complicity of governments at various levels in permitting and/or facilitating environmental crimes both in the United States and abroad.

One application of this perspective would be to study an issue such as the effects of the nation's first "Right to Act" law established in Passaic County, New Jersey, in 1999. The Right to Act law gives Passaic residents the right to establish neighborhood committees to conduct on-site surveys of facilities they suspect may pose environmental health threats to their community (Engler, 1999). Criminologists could also serve as a much-needed public policy advocate to promote these types of legislation and to counter the opposition of corporations. In addition to legalistic endeavors, criminologists could also research the production of environmental law making and issues of contention in the environmental justice domain such as political mobilization of communities, business climate, and legislative professionalism on environmental policy making. In short, there are many variables outside of the conventional socioeconomic demographics that could advance the present understanding of environmental justice processes, including lawmaking, law enforcing, and law breaking (Lester et al., 2001). Finally, criminologists can help continue the recent tradition of

advancing the environmental justice framework beyond the equitable distribution of toxins and the process by which some groups come to share an unequal burden of hazardous exposure and risk. Using a variety of conventional criminological theories, criminologists can research environmental justice more holistically through assessment of housing conditions, land use, industrial planning, health care, sanitation services, economic disinvestments, infrastructure decline, and poverty and unemployment rates (Simon, 2000). On a larger scale, criminologists can help tighten the linkages between global inequality of power and wealth, institutional racism and sexism, unethical and illegal business practices, undemocratic state policies, and the coalescence of these in creating environmental injustices and human rights abuses (Adeola, 2000).

Ultimately, if meaningful change is to occur, criminologists must become more engaged in the process of actively researching and attempting to alter environmental policies. A myriad of social scientists in a variety of disciplines have laid the scientific foundation on which action can occur. Criminologists should further contribute to this empirical base of knowledge that assesses the nature and scope of corporate environmental harms, the dynamics of investigation and enforcement, and effectiveness and consequences of prosecution and sentencing. Although research on environmental justice will continue, and criminologists should partake in this endeavor, criminologists should also join the voices of other social scientists to encourage changes based on existing research findings. Specifically, criminologists must be more willing to lobby government, share research with government officials and agencies, provide expertise to community organizations and activists, and provide expert testimony during environmental justice legislation. As Sachs (1995) maintains, the more far reaching the coalition between groups, the more its policy agenda takes on global significance and the greater the political power attained. Only through these efforts will we begin to make inroads in safeguarding the right to environmental protection, preventing harms before they occur, shifting the burden of proof and responsibility to the polluters, holding polluters both criminally and financially liable for wrongdoing, and redressing existing inequities.

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