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Red state, blue state, green state: analysing the geography of federal environmental crime prosecutions within and across the U.S. states

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ABSTRACT While green criminologists note that environmental crimes are taken less seriously than street crimes by law enforcement and the criminal justice system, the diffuse structure of the environmental regulatory regime in the United States and lack of governmental databases makes empirical assessment of environmental crimes and enforcement efforts particularly difficult. This article builds on a need in the green criminological literature to empirically assess the distribution and prosecution of environmental crimes in the United States, by focusing on the underserved area of the U.S. states. Using content analysis of 972 federal environmental crime prosecutions 2001–2011, this article explores the nature and geography of these crimes and subsequent prosecutions within and across the U.S. states. Our findings show a wide distribution of crimes and prosecutions occurring across the states, with Clean Air and Clean Water violations being particularly prevalent. We also find a weak trend between prosecutions and both the amount of pollution and number of environmental groups per state, but the small number of cases and limitations of the data make drawing firm conclusions difficult. These findings show an increased need to build databases to understand the prevalence of environmental crimes and the prosecution of those offenses in the U.S. states.

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Green criminology is a theoretically and methodologically diverse sub-field of criminology that includes, “the study of ecological, environmental, or green crime or harm, and related matters of speciesism and of environmental (in)justice” [South *et al.*, 2013: 69]. Green criminologists seek to analyse the causes and patterns of environmental or green crimes as they relate to humans, animals and the natural environment (Bierne, 2007, 2009; Fitzgerald *et al.*, 2009; Nurse, 2013; South and Brisman, 2013). The sub-field of green criminology evolved in response to a lack of theorizing about these kinds of harm and victimization, as well as a lack of descriptive and empirical studies found in the traditional criminological literature (Lynch and Stretesky, 2003).

While theorizing and describing the causes of green crime has been an early goal of green criminologists, describing the extent of green crimes locally or comparatively can be difficult, as there are no uniform or national statistics in the United States regarding the prevalence of environmental crimes (Gibbs and Simpson, 2009). Generally researchers develop databases or rely on estimates, based on governmental data or more limited data provided by non-governmental organizations. For example, we know that more than 30 percent of the U.S. population is exposed to unsafe levels of air and water pollution on a daily basis (Lynch, 2013) and one-sixth of the U.S. population, live in close proximity to one or more hazardous waste sites (Cope, 2002), but it is difficult to demonstrate empirically, in many cases, the exact prevalence, causes and consequences of this exposure.

Given the lack of data on green crimes in the United States, green criminologists and other scholars often turn to the examination of certain types of available data to get an idea of the universe of green/environmental crimes. Stretesky’s (2006) work on environmental self-policing used data self-disclosed by companies on environmental violations to the U.S. Environmental Protection Agency (EPA). Lynch *et al.* (2004a) used self-disclosed data on environmental violations and compared it with the penalties assessed across different geographic areas. Other scholars use data on environmental crime sentencing and prosecutions to examine both the kinds of crimes that exist, as well as how those crimes are prosecuted and why (Brickey, 2001; O’Hear, 2004; Ozymy and Jarrell, 2016).

We build on these studies and the current need in the green criminological literature for additional empirical studies that help to further understand the nature and extent of green crimes in the United States. Our focus is to rely on data provided by the EPA on environmental crime prosecutions. Through content analysis of almost 1,000 narrative summaries provided by the agency, we attempt to better understand the geography of environmental crime prosecutions and subsequently, environmental crimes across the states. While this analysis is limited to data on crimes that were actually investigated and prosecuted, the full extent of environmental crimes is difficult to know and no such database exists at this time, nor are they likely to emerge in the short to medium term. Yet by focusing our analysis on the states, we explore an important and underserved area of this growing body of literature that attempts to assess empirically the nature and extent of green crimes in different areas across the United States. This manuscript begins with an overview of the green criminological literature, followed by a discussion of the nature of federal environmental crime prosecutions in the United States, and then provides a description of the data, research design, and findings.

Studying green crime

The development of green criminology as a unique field of study came as a response to the lack of interest in exploring the full

universe of environmental harm in the broader criminological literature (Lynch and Stretesky, 2003). The general reasoning for this omission stems from a standard definition of environmental crime that is limited in focus to actions or omissions that violate the law (Situ and Emmons, 2000). Green criminologists broaden the definitional scope of environmental crime to include forms of harm to humans and the natural environment, even if those actions do not always violate the law (Nurse, 2013; South and Brisman, 2013). As a result of this conceptual shift, green criminology views environmental crime through a more holistic lens and from a perspective that emphasizes “social harm” (Hillyard and Tombs, 2004; Hall, 2012).

By expanding the scope to a broader study of social harm, green criminology, as a distinct sub-field within criminology, looks at harm and victimization to humans, animals, and the natural environment (Stretesky and Lynch, 1999; White, 2011). By extension, green criminologists seek to understand the extent of environmental harm, the causes of this harm, the impact on victims, and to develop practical policy solutions towards reducing or eliminating harm in all of these contexts (Skinnider, 2011; Ruggiero, 2013). While researchers suggest environmental or green crimes cause more overall harm to society than street crime, such crime is rarely depicted as crime by the mass media or studied by mainstream criminologists (Burns and Lynch, 2004; Lynch, 2013). As such, green criminologists, like those criminologists that study corporate and white collar crime, often include a focus on those acts that are not treated as criminal, but should be acknowledged, studied, and treated as such by both the broader field of criminology and the criminal justice system (Frank and Lynch, 1992; Stretesky and Lynch, 1999).

In an effort to document and understand the extent, causes, and consequences of various environmental harms in the United States, green criminologists are limited by data availability. Lacking a large database equivalent to the National Crime Victimization Survey (Skinnider, 2011), scholars often must turn to national or regional estimates of environmental harm or focus on extracting as much data as possible from specialized sources (Bullard *et al.*, 2009). While such examinations narrow the definition of environmental harm to crimes that are actually investigated and prosecuted, research must endeavor to advance empirically on these fronts with the best data available, while continuing to both expand databases on environmental harm and work to broaden the definition of harm across academic and policy circles.

There have been a series of research efforts that have resulted in a growing empirical literature that examines various governmental databases to cull information on aspects of environmental crime and harm in the United States. Similar to this study, one source of data that provides insight into environmental crime is data reported to regulators and regulatory databases, such as the EPA’s Toxics Release Inventory, Enforcement and Compliance History Online (ECHO), and other databases created by state environmental regulatory agencies. For example, Lynch *et al.* (2004a) examined self-reported data on environmental violations and examined penalties across geographic areas with different socio-economic characteristics. Stretesky (2006) looked at self-policing behavior and regulatory inspections and enforcement across companies that self-disclosed versus those that did not. Ozymy and Jarrell (2011, 2012) examined regulatory loopholes in clean air policy at the state level, by examining self-reported upset event data from petroleum refineries. Lynch *et al.* (2004a) compared penalties relative to violations in the oil refining industry. In a related study, Lynch *et al.* (2004b) found that black and low income communities receive less protection from the EPA than other communities (436–437). Jarrell (2007) used

ECHO data to examine penalties against petroleum refineries in the U.S. states.

Research has also emerged to look at the criminal prosecution of environmental crimes using governmental databases. Brickey's (2001) study examined hazardous waste prosecutions, noting more serious offenses may lead to criminal prosecution. O'Hear's (2004) study looked at data on environmental prosecutions and found defendants in environmental crime prosecutions are often treated more leniently than defendants in other federal crime cases. Ozmy and Jarrell's (2016) study examined the predictors of federal environmental crime prosecution outcomes.

The aforementioned studies are limited in scope to particular areas of environmental law or issues related to prosecutions themselves. While the federal government often prosecutes many environmental crimes, these crimes generally occur within the U.S. states and U.S. territories. Yet no studies have analyzed the nature of prosecutions across the states in-depth or the types of environmental crimes that occur in these areas. While limited to cases that were actually investigated and prosecuted, understanding the geography of such prosecutions across the U.S. states provides valuable insights into both the types of environmental crimes that occurred, as well as what was prosecuted. This article attempts to advance our understanding of the universe of environmental crimes, by starting to explain this geography within and across the states. Before the discussion of the data and research design, it is worthwhile to discuss the nature of how federal environmental crimes are investigated and prosecuted in the United States to provide context for how the data emerged.

Prosecuting environmental crimes in a federal system

Generally speaking, countries employ a deterrence approach to combat environmental crimes. Deterrence theory works from the basic idea premise that criminals will be less-likely to commit environmental offenses, if the chance of them being caught and punished is sufficiently high enough to deter the behavior (Pink, 2013; Simpson *et al.*, 2013). Unlike street crime, environmental crimes in the United States are generally treated as regulatory violations, meaning they are investigated, prosecuted, and punished through a regulatory/political process rather than a standard criminal justice approach. To understand how and why environmental crimes are handled in this manner in the United States and the consequences for the deterrent value of this approach, it is important to briefly turn to how the regulatory system works and the historical placement of environmental policy within that system.

Most environmental crimes will go unnoticed by the public, except the very few high profile cases that garner significant media attention (Jarrell, 2009). This proved to be true in the United States when it came to the creation of many environmental regulatory agencies. On the cusp of an increasingly larger number of environmental crises that received significant media attention, such as the 1969 Santa Barbara Oil Spill and the failure of the U.S. states to manage environmental crises led to a series of events, such as the first Earth Day on 22 April 1970 and then the creation of the EPA in December, 1970. The move to create the EPA signaled the move towards much stronger and more systematic federal involvement in environmental law and policy. When President Richard Nixon created the EPA he did not intend for it to play a serious role in preventing environmental crime or regulating the environmental crimes of large U.S. corporations. The first head of the EPA, William Ruckelshaus, took the position seriously, but faced significant obstacles towards creating an effective agency. Not only did the agency have to spend its first decade deciding what was harmful and in what amounts, it had to regulate thousands of sources of emissions in

the country, generally categorized into point or stationary sources (that is, power plants, chemical manufacturers, oil refineries and so on) and the infinite number of non-point or mobile sources of pollution. Compounding the agency's technical problems are two structural components of the U.S. political system that greatly influence environmental enforcement: the politics of the regulatory process and regulatory federalism.

To understand how environmental regulatory agencies make policy and regulations and enforce those regulations, it is helpful to turn to the principal-agent model of agency decision-making often used in political science, public administration, economics, and other disciplines in the behavioral and policy sciences. The principal-agent model sets up political principals, such as Congress, the Executive branch, and the courts as having a certain degree of institutional power over administrative agencies. These political principals have the authority to direct agencies to act on their behalf (Moe, 1985). While Congress may pass environmental laws, such as the Clean Air Act (CAA), they must delegate authority to the EPA to create regulations to implement and enforce the policy (Fiorino, 2006). This delegation of authority, which is made possible by the inability of Congress to implement all facets of the CAA themselves gives the agency both discretion and authority over environmental policy (Ringquist, 1995). Congress and these other political principals either acting on behalf of one or more officials within the branch of government or on behalf of or in conjunction with other political actors, such as organized interests, must employ a series of rewards and punishments to mold agency actions, while engaging in various forms of oversight of agency behavior (Mintz, 1995; Atlas, 2007). Unlike a standard criminal justice process, the enforcement of environmental law occurs within a political process between these various principals that seek to control agency outcomes and the agency itself acting as the agent in this dyad, which is required to abide by the rules and dictates of these principals. The enforcement of environmental law is thus best categorized as a rather confusing environment for the agency, which is subjected to the demands of often competing principals using various means to shape enforcement outcomes.

Outside of the principal-agent problems inherent in the enforcement of environmental laws in the United States, is the fact that the agency is only delegated certain authority within a federal system of government and is done so with limited resources. The U.S. Constitution was structured under the idea of power sharing between the national and state governments. Overtime, through a combination of historical precedent, case law, and fiscal federalism (also called cooperative federalism) practiced by the federal government, the federal government has gained authority over environmental law, but it does not monopolize power in this realm.

The CAA can be given as an illustrative example of how federalism influences environmental enforcement. The U.S. Constitution does not give Congress the ability to regulate air emissions. Congress determined via its ability to regulate interstate commerce and subsequent court decisions that supported this and other delegated powers, that it could regulate air emissions. Yet outside of Washington DC and other federal territories, Congress has to implement the CAA within state boundaries. Through fiscal federalism Congress provides billions of dollars annually to the states for a variety of programs, such as education, road maintenance and construction, health care, and many other policy areas. Like the principal-agent model of agency decision-making, Congress can begin to limit funds to the U.S. states if it does not get the desired outcome or enhance them to entice adoption of programs; it thus incentives compliance and punishes non-compliance for recalcitrant states. Some examples include: standardizing the age for alcohol consumption, getting states to

expand healthcare through the Affordable Care Act, expanding Medicaid after the 2008 financial crisis, and many others.

Regardless of how Congress uses its fiscal resources to influence state actions or how the president might use his appointment powers or power over executive orders to affect the outcomes of federal environmental agencies, without the assistance of the states and their various environmental regulatory agencies, federal environmental laws would simply be unenforceable. For all of the EPA's resources, Congress is miserly when it comes to enforcement. According to Solow and Carpenter (2011) in 2010 the budget for federal environmental crime enforcement was just over 50 million dollars. In the context of the authors' own work, we contacted the EPA's Office of Criminal Enforcement and inquired about the number of agents whose primary job is to investigate environmental crimes (known as 1811s) and the response from the agency was that in 2009, there were only 183 such agents on the agency's payroll.

On a good day the EPA has about 200 agents to investigate environmental crimes and a limited enforcement budget. It is no surprise that in practice most violations of environmental crimes are punished via monetary fines and settled via negotiated settlements (Ozmy and Jarrell, 2011). The agency falls prey to a simple logic of what Daley and Layton (2004) call a "transactions cost" logic of agency decision-making. Given the political pressure by competing principals that are openly hostile to strong enforcement and the numerous resources employed by many corporations that violate environmental laws, pair this with limited resources and it is no wonder why the agency chooses to negotiate settlements with environmental offenders, rather than pursue criminal prosecution (Uhlmann, 2009; Mintz, 2012). In other words, facing the transaction costs of pursuing criminal investigations and prosecution (budgetary and political), the agency simply negotiates most settlements out of necessity; this occurs even with the long history within the agency's culture of valuing strong enforcement (Mintz, 2004, 2005). The number of criminal indictments pursued by the agency was only about 340 in 2007 (Jarrell and Ozmy, 2014). Large corporations and other environmental offenders understand the transaction costs associated with strong enforcement, which is why the deterrent value of environmental enforcement is often very low (Ozmy and Jarrell, 2016) and offenders may see enforcement as just another variable in the calculation of the economic cost of doing business.

The recognition that small fines had little deterrent value for environmental criminals and that compliance with regulatory rules required stiffer penalties, led to the creation of the EPA's Office of Environmental Enforcement in 1981 and the Department of Justice's (DOJ) Environmental Crimes Section in 1982. Before the creation of these institutions, the federal government only prosecuted 25 environmental crimes (Campbell-Mohn *et al.*, 1993). However, the actual governmental apparatus that oversees and punishes environmental offenders consists of a wide range of laws and statutes across local, state, and federal jurisdictions. While the number of environmental crime prosecutions began increasing through the 1990s (Cooney, 2006), there is still a relatively small amount of funds budgeted for this important work (Solow and Carpenter, 2011), given the magnitude of the problem in the country.

At the federal level, the EPA handles most investigations that uncover wrongdoing through civil fines and penalties, rather than referring cases for prosecution. While the agency employs attorneys and criminal investigators, they must refer cases outside the agency if they are deemed serious enough for criminal prosecution. Generally, cases referred for criminal prosecution are handled by the Environmental and Natural Resources Division of the DOJ and/or attorneys representing the EPA from the U.S.

Attorney's Office. In practice, state and local environmental regulators generally do not have sufficient resources or experience to investigate major environmental crimes. Nor do most local district attorneys or state Attorney General's Offices that would prosecute criminal offenses of environmental law generally have significant resources and experience in the area. In practice, as most crimes happen within state borders, not federal territory, both local and state environmental regulators often work with EPA investigators and attorneys that represent the agency to pool resources to investigate and prosecute criminal violations of environmental law. As a result of the costs involved, "The EPA requires its criminal investigators to focus on matters involving significant environmental harm and culpable conduct, with culpability defined to include repetitive violations, deliberate misconduct, and acts of concealment or falsification" (Uhlmann, 2009: 1244).

When explaining the distribution of enforcement activities in the U.S. states, explaining these outcomes empirically with extreme preciseness is quite difficult. The practical reality of environmental enforcement is that enforcement decisions are the result of a vast compromise between political agents at the federal level sending numerous and often conflicting signals to the EPA, interests groups that lobby for or against agency actions and routinely take them to court (the vast number of EPA regulations are challenged in the U.S. courts by a variety of organized interests, corporations, individuals, and a variety of state governments), and the value placed within the agency's culture on enforcement (Mintz, 2004, 2005). The EPA is divided into ten regional offices, each of which has a variety of responsibilities in their geographic regions, as well as varied reputations for pursuing strong enforcement activities. Region II, for example, has a strong reputation for enforcement activities, which has been cataloged in past research (Ozmy and Jarrell, 2015), whereas other regions have a less than stellar reputation. The EPA's actions may be affected by the current political environment (Ringquist, 1995; Ozmy and Jarrell, 2016) and that may influence the outcome in the states and political structure in general (Ozmy and Rey, 2013). Outcomes may result from the sheer nuance of the crimes that happened to be investigated at the time, the size of the state, presences of environmental groups, size of industry and so on. In the authors' own experience, the outcome of enforcement cases is greatly affected by the commitment of DOJ prosecutors to take a personal interest in a case and push it forward for prosecution, often at great personal and professional cost to themselves.

Case outcomes and the distribution of cases in the states also results from the commitment and resources put forward by state environment agencies, which do most of the daily monitoring of polluters and engage in the vast majority of routine enforcement activities. Some state environmental agencies, such as the California Environmental Protection Agency have a positive reputation for stronger enforcement. Others, such as the Texas Commission on Environmental Quality (TCEQ) often have a poor reputation. While the TCEQ is very large and active, it is often criticized for its poor performance (Willies, 2011), which is not uncommon of many state environmental agencies. Finally, case outcomes may be the result of different states applying different standards to environmental crimes. For example, the TCEQ has been criticized for allowing industrial facilities to excuse air emissions if they self-report them as accidental or done in the process of maintenance. These "upset events" have been shown to cause significant pollution, but penalties are often waived, where this may not be the case in other states (Ozmy and Jarrell, 2011, 2012).

While not exhaustive, all of these variables speak to the difficult nature of trying to describe the causes behind the distribution of

environmental crime cases in the U.S. states. Yet we do not attempt to achieve this broader goal, focusing instead on building an important groundwork, by identifying the geography of these cases (although we explore some of these variables in the analysis). While this is a more modest goal, examining the geography of federal environmental crime prosecutions will only provide a small window to the environmental harms experienced across the United States. It will give insight into what is prosecuted, as well as provide a sense of the distribution of these crimes across space and time in an area underserved in the research. Given that the green criminological literature suffers from the lack of quality, consistent federal databases on environmental crimes and a dearth of data at the state and local level, it is imperative to build on this current literature and advance our understanding of environmental crime and harm with the best data possible. This study is a step in this direction.

Data and analysis

To explore the geography of federal environmental crimes and prosecutions across the U.S. states, we collect data from the EPA's *Summary of Criminal Prosecutions Database*.¹ This database is drawn from raw narrative summaries provided annually by the EPA's Office of Compliance and Enforcement. While the scope is limited to federal prosecutions, the database is the most consistent and comparable source of this kind of governmental data available. We collected data by U.S. government fiscal year (October-September), 2001–2011. This provides a decade of data on federal prosecutions. We analyzed all of the cases included in the database during this time period, which totaled 972 cases included and analyzed in the study.

We began the content analysis process, by having both researchers read the case narratives for fiscal year 2001. Once we began to make open notes and comments on the kind of data that was emerging from the case summaries, we created a spreadsheet and related codebook for the categories of data we found most helpful in the study. For each case narrative, we included categories for: case summary, year, primary defendant, docket number, U.S. state or territory in which the crime occurred, major statute(s) that led to the indictment, number of charges, and number of defendants.

Since the case narratives are inputted in an open, narrative fashion, in many cases coding involved minor researcher judgement, whereas some cases were more difficult to code. We sought to establish a high level of intercoder reliability. After the researchers developed the spreadsheet and codebook, three trial runs were implemented with the case data, to explore the logic and judgement that was being applied to coding the data. Then, two research assistants independently coded each case. The next step was to review each spreadsheet for cases that lacked intercoder agreement. Finally, the researchers reviewed the cases of conflicting data and came to mutual agreement on the proper coding of the data.

These case outcomes provide a rich sources of data, but have limitations. The narratives are imputed by the agency, which of course benefits from promoting their efforts. The judgment utilized by the person writing the initial narratives may be biased towards creating a positive image of the agency and may downplay the randomness of the events that led to the investigation or minimize the role played by state environmental agencies in the investigations. The narratives may be incomplete, to the extent that they do not catalog appeals that may have reduced the penalties in the case or exclude certain facts in the case. The method of recording the narratives may generate errors as we applied judgement to coding these cases-although we did so with strict protocols to limit this as best as possible. While these

may be limitations, they still provide important and original insights into the kinds of enforcement actions undertaken in the U.S. States and begin to paint a broader picture of the distribution of those actions-something currently lacking, but needed in the scholarly literature. We explore these data below.

Results

Turning to the geography of these cases across the states, Table 1 lists total criminal prosecutions per year by state, 2001–2011. Two of the larger states, California and New York have the largest total number of prosecutions over this time period at 90 and 89, respectively. The size of the state's geography and complexity of the regulatory environment does not necessarily mean there will be a greater number of prosecutions. Texas, for example, has a large industrial base in cities like the Corpus Christi and Houston Ship Channel, as well as a large population and land mass, but only 31 cases were prosecuted in the state over the ten year time period in the analysis.

The data do not show a linear trend of prosecutions occurring within the states. In 2001 in New York, two cases were prosecuted, whereas in 2006 we see 16 cases, and 5 by 2011 in the dataset. California is also widely distributed in this regard, with 5 cases in 2001, 8 in 2005, 18 in 2006 and 15 in 2011. We also find that some states, even those with heavy industrial production of natural resources, such as coal in the Powder River Basin covering Wyoming and South Dakota have very few prosecutions. Wyoming had only two prosecutions during this time period, whereas we find no cases in either of the Dakotas.

While Table 1 provides the basic geography of cases across the U.S. states, Table 2 explores the types of cases that were prosecuted. While the charges varied widely in these cases, we focus on those cases here that were charged under one or more major federal environmental statutes. We categorize these by the CAA, Clean Water Act (CWA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA). We found a number of cases falling under Migratory Bird Treaty Act as well. While these are not exhaustive, they provide a basic overview of the kinds of crimes that were prosecuted. CAA cases often involved cases such as illegal asbestos removal and abatement practices, illegal release of toxic chemicals into the air, or illegal use of chemicals, refrigerants, etc. Some CAA cases involved more serious and fatal crimes. One salient example was the 2005 explosion at the British Petroleum refinery in Texas City, Texas. They were later charged under the CAA.

Cases charged under the CWA often involves illegal discharge, dumping or storage of various chemicals or pollutants. Some cases, such as that against Equilon Pipeline in Washington involved failure to properly maintain a pipeline that ruptured and killed bystanders. Many of the CERCLA cases involve the illegal dumping of hazardous waste. FIFRA cases involve the misuse of pesticide quite frequently in the dataset, many of which involve defendants using rodenticides that kill animals or in many cases endangered birds, which means defendants are often charged under the MBTA as well. RCRA cases tend to involve illegal storage or disposal of hazardous materials. One more serious case involved Alan Elias of Idaho, who was charged with illegal disposal for exposing his employees to cyanide while on the job. Cases involving violations of the TSCA may include such instances of improperly informing tenants of lead based paint, exposing people to lead or asbestos, or illegal removal and disposal of asbestos. Many of these cases involved failures on the part of landlords to properly inform tenants that there was lead

Table 1 | Total criminal prosecutions by state/year, 2001-2011

| State | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| AK | 2 | 0 | 2 | 0 | 2 | 1 | 1 | 3 | 0 | 2 | 2 | 15 |
| AL | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| AR | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 4 |
| AZ | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| CA | 5 | 6 | 4 | 7 | 8 | 18 | 10 | 2 | 6 | 9 | 15 | 90 |
| CO | 0 | 2 | 8 | 1 | 4 | 5 | 4 | 1 | 3 | 3 | 5 | 36 |
| CT | 1 | 1 | 2 | 2 | 2 | 1 | 0 | 0 | 1 | 3 | 1 | 14 |
| DE | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| FL | 4 | 2 | 8 | 3 | 0 | 6 | 4 | 1 | 2 | 1 | 8 | 39 |
| GA | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 2 | 8 |
| HI | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 1 | 1 | 1 | 0 | 12 |
| IA | 0 | 1 | 4 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 4 | 15 |
| ID | 0 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 3 | 5 | 20 |
| IL | 1 | 2 | 3 | 2 | 3 | 4 | 4 | 5 | 3 | 0 | 5 | 32 |
| IN | 2 | 3 | 1 | 2 | 0 | 1 | 2 | 2 | 3 | 2 | 2 | 20 |
| KS | 2 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 2 | 1 | 1 | 13 |
| KY | 2 | 1 | 3 | 4 | 2 | 2 | 1 | 0 | 4 | 3 | 3 | 25 |
| LA | 1 | 1 | 6 | 0 | 0 | 6 | 2 | 2 | 2 | 2 | 5 | 27 |
| MA | 1 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 1 | 0 | 2 | 11 |
| MD | 1 | 1 | 6 | 0 | 0 | 2 | 2 | 1 | 0 | 4 | 1 | 18 |
| ME | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 |
| MI | 0 | 1 | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 1 | 4 | 21 |
| MN | 1 | 0 | 2 | 1 | 4 | 3 | 0 | 0 | 1 | 1 | 0 | 13 |
| MO | 2 | 1 | 5 | 1 | 4 | 5 | 3 | 3 | 11 | 6 | 7 | 48 |
| MS | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4 |
| MT | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 3 | 10 |
| NC | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 |
| ND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 1 | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 0 | 4 | 1 | 12 |
| NH | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 4 | 13 |
| NJ | 0 | 0 | 3 | 2 | 0 | 4 | 2 | 1 | 3 | 2 | 0 | 17 |
| NM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| NV | 1 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 8 | 17 |
| NY | 2 | 0 | 10 | 13 | 11 | 16 | 12 | 3 | 7 | 10 | 5 | 89 |
| OH | 3 | 0 | 12 | 6 | 0 | 9 | 6 | 2 | 4 | 7 | 9 | 58 |
| OK | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 |
| OR | 1 | 1 | 3 | 5 | 6 | 1 | 1 | 4 | 4 | 5 | 2 | 33 |
| PA | 6 | 3 | 4 | 3 | 6 | 8 | 3 | 1 | 1 | 3 | 1 | 39 |
| RI | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 0 | 1 | 1 | 1 | 9 |
| SC | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 |
| SD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TN | 4 | 2 | 2 | 3 | 3 | 3 | 6 | 0 | 2 | 1 | 2 | 28 |
| TX | 3 | 2 | 4 | 4 | 5 | 1 | 2 | 1 | 3 | 3 | 3 | 31 |
| UT | 1 | 1 | 4 | 0 | 1 | 4 | 1 | 1 | 3 | 2 | 1 | 19 |
| VA | 6 | 1 | 2 | 0 | 0 | 4 | 2 | 1 | 2 | 0 | 0 | 18 |
| VT | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 3 |
| WA | 1 | 1 | 5 | 1 | 3 | 2 | 2 | 0 | 1 | 3 | 2 | 21 |
| WI | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 3 |
| WV | 4 | 1 | 6 | 0 | 2 | 4 | 4 | 2 | 0 | 1 | 1 | 25 |
| WY | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Total | | | | | | | | | | | 961 | |

Source: EPA, Summary of Criminal Prosecutions Database.

based paint in the dwelling. In one such case in Nevada, JTA Real Estate was charged for failure to disclose lead paint, which resulted in the death of a child who was exposed to the lead paint.

By far, we find that CAA and CWA cases are the most prevalent across the states, with 129 and 282 cases respectively. There were also 99 RCRA cases prosecuted during this time period. We only find 8 cases where it appears the primary charge was under CERCLA, 38 for FIFRA, 22 more the TSCA, and 23 for the Migratory Bird Treaty. We find an overall total of 622 cases in the dataset that involve one or more of these charges. The largest number of cases are prosecuted in California (58), New York, (29), and states like Missouri (40). Some states had very few

examples of prosecutions, such as North Carolina (3), Vermont (3) and South Dakota (0).

When we go beyond the major federal statutes that make up the majority of broad charges in the data set, in a variety of instances we see a few other types of charges emerging quite prevalently in the data. In approximately 176 cases, we find that defendants were charged under the broad category of “state environmental laws/regulations” in the case narratives. Many of these defendants were charged in tandem with other charges/violations. This finding shows the state and federal agencies working together to share jurisdiction and possibly resources in the cases.

Table 2 | Total prosecutions by state by major federal environmental law, 2001-2011

| State | CAA | CWA | CERCLA | FIFRA | RCRA | TSCA | BIRD |
|-------|-----|-----|--------|-------|------|------|------|
| AK | 1 | 3 | 0 | 0 | 0 | 0 | 1 |
| AL | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| AR | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| AZ | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| CA | 10 | 29 | 2 | 6 | 11 | 0 | 0 |
| CO | 3 | 5 | 0 | 0 | 1 | 0 | 0 |
| CT | 3 | 6 | 0 | 0 | 0 | 2 | 0 |
| DE | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| FL | 8 | 10 | 0 | 1 | 2 | 0 | 1 |
| GA | 1 | 2 | 0 | 0 | 2 | 0 | 1 |
| HI | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| IA | 1 | 6 | 0 | 0 | 2 | 0 | 0 |
| ID | 1 | 9 | 0 | 1 | 3 | 0 | 0 |
| IL | 5 | 7 | 0 | 1 | 4 | 1 | 2 |
| IN | 2 | 10 | 0 | 1 | 3 | 0 | 0 |
| KS | 0 | 5 | 1 | 0 | 2 | 0 | 0 |
| KY | 0 | 8 | 0 | 10 | 0 | 0 | 6 |
| LA | 4 | 15 | 0 | 1 | 0 | 0 | 0 |
| MA | 0 | 3 | 1 | 0 | 1 | 0 | 1 |
| MD | 1 | 4 | 0 | 1 | 1 | 1 | 0 |
| ME | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| MI | 2 | 4 | 0 | 1 | 4 | 1 | 0 |
| MN | 1 | 9 | 0 | 0 | 2 | 0 | 0 |
| MO | 5 | 17 | 0 | 5 | 6 | 5 | 2 |
| MS | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| MT | 0 | 6 | 0 | 0 | 1 | 0 | 0 |
| NC | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| ND | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 3 | 0 | 2 | 0 | 1 | 0 |
| NH | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| NJ | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| NM | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| NV | 10 | 3 | 0 | 0 | 0 | 2 | 0 |
| NY | 29 | 9 | 3 | 0 | 6 | 5 | 0 |
| OH | 8 | 22 | 0 | 1 | 1 | 0 | 3 |
| OK | 0 | 2 | 0 | 0 | 3 | 0 | 0 |
| OR | 2 | 7 | 0 | 0 | 4 | 0 | 0 |
| PA | 8 | 10 | 0 | 0 | 4 | 3 | 0 |
| RI | 0 | 0 | 0 | 2 | 3 | 0 | 1 |
| SC | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| SD | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TN | 1 | 10 | 0 | 2 | 7 | 0 | 3 |
| TX | 5 | 6 | 0 | 0 | 7 | 0 | 0 |
| UT | 3 | 4 | 0 | 1 | 2 | 0 | 1 |
| VA | 3 | 9 | 0 | 0 | 2 | 0 | 0 |
| VT | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| WA | 1 | 6 | 0 | 0 | 2 | 0 | 0 |
| WI | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| WV | 2 | 11 | 1 | 0 | 7 | 1 | 0 |
| WY | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Total | 129 | 282 | 8 | 38 | 99 | 22 | 23 |

Grand total: 622.
Source: EPA, Summary of Criminal Prosecutions Database.

We additionally find defendants are not always “caught in the act” of committing the environmental crime itself, but with some action related to the crime. The reason for this occurring is directly linked to the difficult nature of finding environmental evidence or linking an individual, company, or corporation to that evidence. If a coal plant releases additional SO₂ beyond permissible limits, many times this is not captured by monitoring equipment. The same happens for other stationary sources of pollution emanating from chemical plants or petroleum refineries. This makes catching an environmental criminal in the act difficult. It also makes it difficult to find willful, intentional, or

chronic behavior and find a responsible party. As a consequence, prosecutors often rely on other tools used in white collar and corporate crime cases, such as checking log books (you can catch, for example, a petroleum refinery environmental manager making false statements, finding that someone covered up a crime once an investigation began (that is, the individual changed the content of the log books)), or a defendant lies to investigators. These tools are used frequently and we find 191 cases of false statements and 88 cases of conspiracy in the dataset. Given the difficulty of tracing illegal air emissions and discharges to a responsible party, this explains in great part why you often see CAA cases prosecuted for illegal asbestos removal or abatement, as the evidence is still available. Alternatively, CWA cases often involve illegal discharges that are still present in the environment, allowing defendants to be prosecuted under that law.

We conclude the analysis with Table 3, which compares the total prosecutions occurring within each state during the time period in the dataset with a set of state-level geographic, political and environmental variables. Here, we want to look at any trends across the states on a series of metrics. The first column after listing each state lists the total prosecutions occurring in each state. The second column lists the number of Superfund sites per state from Scorecard (2002). The third column lists the population estimates from the 2000 U.S. Census. The fourth column lists the land area of the state in square miles. The fifth column is a measure of environmental group presence in each state density we created computed by combining the number of registered environmental groups by year from the National Center for Charitable Statistics (2016) using codes C1, 12, 20, 27, 30, 32, 34 and 35. The sixth column is a measure of environmental group density created by dividing the total land area of each state by the environmental group presence measure. The seventh column is a measure of the ideology of the state senate delegation for each state from 2005 from the League of Conservation Voters (2005), which goes from 0–100 (most liberal). The final column is a measure of the ideology of the state house delegation from 2005 on the same scale.

The small number of prosecutions makes looking at a rate of prosecution by land area or population difficult. When we look for proxy measures of commitment to the environment using the group density measure, we see a slight trend, but not a strong one. This is a little more pronounced if one uses the number of groups per state as an alternative measure, but it is still not very strong. This relationship is found in Fig. 1. We find a weak trend between the amount of pollution within each state or better put, the number of sources of pollution using a rough measure of the number of Superfund sites. This relationship is represented graphically in Fig. 2. Finally, as a proxy for the ideology of the state political environment, we do not witness a trend between the liberalness of each state’s senate and house delegation and the number of prosecutions.

Conclusions

The distinct sub-field of green criminology emerged to broaden the scope of the study of environmental crime to the larger and more theoretically robust emphasis on social harm (Hall, 2012; South and Brisman, 2013). However, moving from the theoretical and descriptive to empirical assessment of environmental harm has proven somewhat more difficult. Some researchers take a broader view to estimate the prevalence of environmental harm in the United States (Bullard *et al.*, 2009), while others have utilized a variety of self-reported data and government databases to look at the prevalence and causes of environmental crime (Brickey, 2001; Lynch *et al.*, 2004a, 2004b; Stretesky, 2006; Ozymy and Jarrell, 2012). Ultimately, there is simply a need for more data to

Table 3 | Comparing total prosecutions by state to state political, geographical and environmental data, 2001–2011

| | <i>Total Cases</i> | <i>Superfund</i> | <i>Population</i> | <i>Area</i> | <i>Groups</i> | <i>Group Density</i> | <i>LCVS</i> | <i>LCVH</i> |
|----|--------------------|------------------|-------------------|-------------|---------------|----------------------|-------------|-------------|
| AK | 15 | 6 | 627 | 569,600 | 40 | 14240 | 8 | 0 |
| AL | 2 | 15 | 4447 | 50,708 | 42 | 1207.333333 | 5 | 14 |
| AR | 4 | 11 | 2673 | 51,945 | 24 | 2164.375 | 63 | 48 |
| AZ | 3 | 9 | 5131 | 113,417 | 60 | 1890.283333 | 25 | 28 |
| CA | 90 | 98 | 33,872 | 156,361 | 571 | 273.8371278 | 90 | 58 |
| CO | 36 | 18 | 4301 | 103,766 | 151 | 687.192053 | 43 | 41 |
| CT | 14 | 16 | 3406 | 4862 | 112 | 43.41071429 | 80 | 77 |
| DE | 5 | 15 | 784 | 1982 | 14 | 141.5714286 | 85 | 67 |
| FL | 39 | 52 | 15,982 | 54,090 | 160 | 338.0625 | 50 | 36 |
| GA | 8 | 16 | 8186 | 58,073 | 88 | 659.9204545 | 5 | 35 |
| HI | 12 | 3 | 1212 | 6425 | 30 | 214.1666667 | 70 | 78 |
| IA | 15 | 14 | 2926 | 55,941 | 55 | 1017.109091 | 53 | 23 |
| ID | 20 | 9 | 1294 | 82,677 | 45 | 1837.266667 | 5 | 8 |
| IL | 32 | 45 | 12,419 | 55,748 | 97 | 574.7216495 | 95 | 54 |
| IN | 20 | 30 | 6080 | 36,097 | 83 | 434.9036145 | 53 | 20 |
| KS | 13 | 13 | 2688 | 81,787 | 31 | 2638.290323 | 5 | 19 |
| KY | 25 | 14 | 4042 | 39,650 | 37 | 1071.621622 | 0 | 16 |
| LA | 27 | 16 | 4469 | 44,930 | 33 | 1361.515152 | 30 | 13 |
| MA | 11 | 32 | 6349 | 7826 | 199 | 39.32663317 | 95 | 94 |
| MD | 18 | 19 | 5296 | 9891 | 100 | 98.91 | 93 | 74 |
| ME | 2 | 12 | 1275 | 30,920 | 111 | 278.5585586 | 70 | 97 |
| MI | 21 | 69 | 9938 | 56,817 | 130 | 437.0538462 | 83 | 43 |
| MN | 13 | 24 | 4919 | 79,289 | 102 | 777.3431373 | 63 | 53 |
| MO | 48 | 27 | 5595 | 68,995 | 52 | 1326.826923 | 8 | 37 |
| MS | 4 | 5 | 2845 | 47,296 | 16 | 2956 | 0 | 33 |
| MT | 10 | 15 | 902 | 145,587 | 77 | 1890.74026 | 30 | 11 |
| NC | 5 | 29 | 8049 | 48,798 | 104 | 469.2115385 | 3 | 47 |
| ND | 0 | 0 | 642 | 69,273 | 12 | 5772.75 | 63 | 56 |
| NE | 12 | 11 | 1711 | 76,483 | 30 | 2549.433333 | 18 | 2 |
| NH | 13 | 20 | 1236 | 9027 | 48 | 188.0625 | 35 | 39 |
| NJ | 17 | 116 | 8414 | 7521 | 83 | 90.61445783 | 90 | 72 |
| NM | 3 | 13 | 1819 | 121,412 | 59 | 2057.830508 | 38 | 39 |
| NV | 17 | 1 | 1998 | 109,299 | 21 | 5204.714286 | 60 | 33 |
| NY | 89 | 93 | 18,976 | 47,831 | 247 | 193.6477733 | 98 | 68 |
| OH | 58 | 35 | 11,353 | 40,975 | 121 | 338.6363636 | 30 | 32 |
| OK | 5 | 11 | 3451 | 68,782 | 20 | 3439.1 | 3 | 6 |
| OR | 33 | 12 | 3421 | 96,184 | 175 | 549.6228571 | 70 | 82 |
| PA | 39 | 95 | 12,281 | 44,966 | 216 | 208.1759259 | 25 | 35 |
| RI | 9 | 12 | 1048 | 1049 | 40 | 26.225 | 95 | 100 |
| SC | 4 | 25 | 4012 | 30,225 | 55 | 549.5454545 | 13 | 34 |
| SD | 0 | 2 | 755 | 75,955 | 16 | 4747.1875 | 48 | 56 |
| TN | 28 | 13 | 5689 | 41,328 | 62 | 666.5806452 | 10 | 33 |
| TX | 31 | 45 | 20,852 | 26,2134 | 161 | 1628.161491 | 3 | 20 |
| UT | 19 | 19 | 2233 | 820,964 | 45 | 18243.64444 | 8 | 19 |
| VA | 18 | 30 | 7079 | 39,780 | 102 | 390 | 13 | 31 |
| VT | 3 | 10 | 609 | 9267 | 63 | 147.0952381 | 90 | 94 |
| WA | 21 | 47 | 5894 | 66,570 | 136 | 489.4852941 | 93 | 65 |
| WI | 3 | 40 | 5364 | 54,464 | 135 | 403.437037 | 83 | 58 |
| WV | 25 | 9 | 1808 | 24,070 | 29 | 830 | 73 | 50 |
| WY | 2 | 2 | 494 | 97,203 | 20 | 4860.15 | 13 | 6 |

Source: Various, see text.

properly empirically assess both the prevalence and prosecution of green crimes in the United States and abroad (Gibbs and Simpson, 2009).

In this article, we follow the lead of scholars that utilize government databases to look at the prevalence of green crimes occurring across the United States, with a particular focus on federal environmental crime prosecutions occurring within and across the U.S. states, 2001–2011. Content analysis of these investigations and prosecutions, while limited, provides a robust dataset for examining the types of green crimes that are occurring throughout the states during this time period. While acknowledging that the vast majority of environmental crimes are punished through fines and administrative actions (Mintz, 2012),

this dataset provides some insight into the types of crimes that are occurring, as well as those deemed serious enough to prosecute.

Across the states, we find that states, such as New York and California seem to prosecute the most cases. We additionally find that CAA and CWA cases tend to dominate across major federal charging statutes in the dataset, as well as many cases where defendants were charged generically with violating state environmental law. Alongside these statutes, we find prosecutors often charge defendants using standard tools applied to white collar prosecutions, such as catching someone for falsifying log books or lying to investigators. These kinds of charges, generally logged as conspiracy or false statements, were quite prevalent in the dataset, both alone and in conjunction with other charges. When

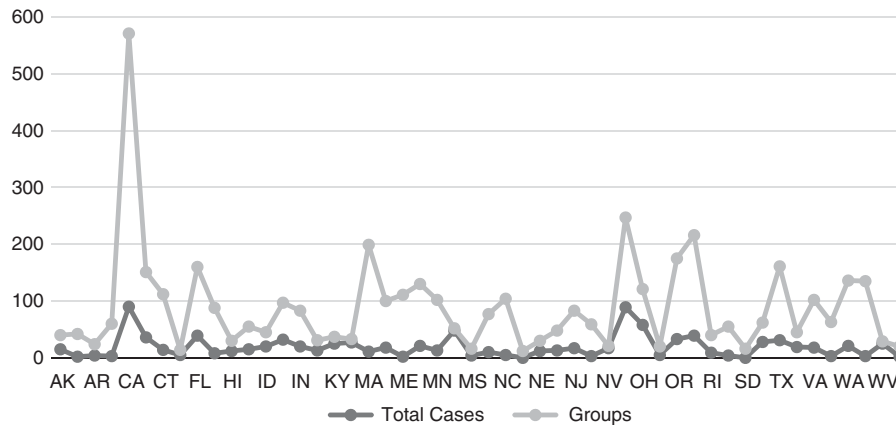


Figure 1 | Comparing the total cases prosecuted within each state to the number of environmental groups per state. Source: EPA, Summary of Criminal Prosecutions Database; NCCS (2005)

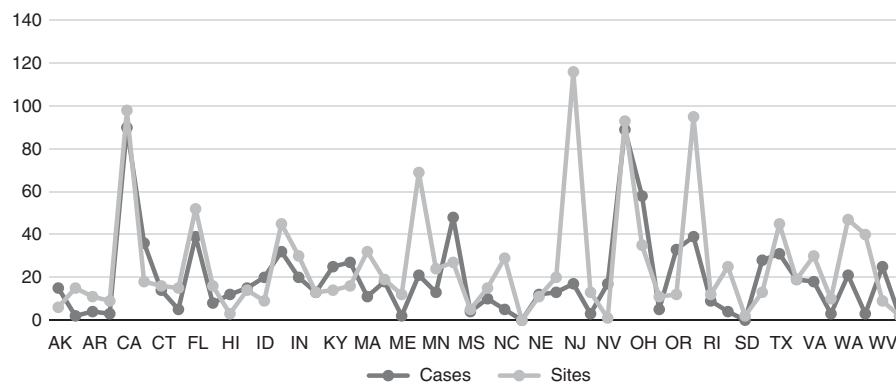


Figure 2 | Comparing the number of total cases prosecuted within each state to the number of superfund sites per state. Source: EPA, Summary of Criminal Prosecutions Database; Scorecard (2002).

prosecutors are unable to catch someone dumping the actual toxic waste, they are often able to catch them for falsifying a log book or manifest, providing false information, or lying to obstruct the investigation and can charge accordingly. As Mintz (2006: 1045–1047) argues, many of these cases are simply made because of whistleblowers, ex-employees, and other civil inspections that accidentally uncover wrongdoing.

These prosecutions must be understood within the complex and often politicized environment surrounding environmental regulation. Not only do state and federal agents often have overlapping jurisdiction, but Congress and the President are often at odds over what the EPA should do and how much it should be budgeted for certain functions; the agency itself can often be at loggerheads with their political principals (Ringquist, 1995; Mintz, 2006; Barnes, 2009). As Gray and Shimshack (2011) note, the actual enforcement budget for the OECA has been fairly flat for the time period in our dataset and the EPA often functions under tight budget constraints (Mintz, 2004, 2012; Brickey, 2008). To give some idea of how little the criminal enforcement budget is for the EPA, in 2005, the Criminal Enforcement Division employed only 189 investigators with a related budget of US\$46.1 million. By 2009, with a presumably more liberal president in office (President Obama as opposed to G.W. Bush), the number of criminal investigators declined slightly to 186 and the budget only increased to \$49.4 million (OCEFT, 2012).² Thus, while we find a little less than 100 cases per year in the dataset, this must be understood in the context of the costs (financial and sometimes political for pursuing cases against large corporations) and

limited resources to pursue criminal cases against environment offenders.

Future green criminological research will benefit markedly from pursuing a stronger empirical understanding of the extent of environmental harm in the United States, at least in the limited operational sense of crimes that are reported and investigated, as well as how those crimes are investigated and/or prosecuted. Future studies would benefit from a robust analysis of state environmental data, but such data is often incomplete and inconsistent across time and space. Yet any insight into this process would be valuable. In the context of a broader definition of social harm as applied to those cases deemed worth to be prosecuted as crimes, future research will benefit from examining crimes against animals and the natural environment, as well as human victims (Cao Ngoc and Wyatt, 2013; Clarke and Rolf, 2013; Lynch and Stretesky, 2014; Wyatt, 2014; Petrossian, 2015). Unfortunately, as Sollund (2011) notes, “forests, animals, birds, fish, and eco-systems do not complain; they vanish” (3). This alone should give green criminologists sufficient motivation to continue moving research in this direction.

Notes

- 1 Located at: https://cfpub.epa.gov/compliance/criminal_prosecution/, accessed 11 March 2017.
- 2 The data for the number of criminal investigators and budgetary resources exclusively allocated to environmental crime came by personally contacting the Office of Criminal Enforcement and obtaining data on their budget and special agents engaged in the investigation of environmental crimes called 1811s.

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Data availability

The datasets generated during and/or analysed during the current study are not publicly available because of ongoing use, but are available from the corresponding author on reasonable request.

Additional information

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