

CRIMINAL SENTENCING TRENDS FOR ENVIRONMENTAL
CRIMES PROSECUTED UNDER THE JURISDICTION OF
THE ENVIRONMENTAL PROTECTION AGENCY

by

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DEDICATION

I would like to dedicate this thesis to my family, friends, and the professors who have helped me during my time in academia. Without you and your collective support and encouragement this would not be possible. I would like to make special mention of my mother, Alice Sandel, who has always supported me unconditionally throughout my academic career. It is through your love and support that I aspire to greater things. I would also like to make a special dedication to my grandparents; though they are no longer with us, their love and support were crucial in making me the man I am today.

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ABSTRACT

The purpose of this study is to increase the understanding of sentence variations for environmental crimes prosecuted under the jurisdiction of the Environmental Protection Agency (EPA). Data was collected from the EPA's Criminal Online Database for fiscal years 2001-2011. Ninety-two cases that stated an identified victim were then pulled from the 972 overall cases. These cases were compared by victim type, offender type, region, and year. Findings indicated that cases with a human victim received higher fines, more probation, and longer incarceration. Next, it was found that corporations were sentenced to higher fines and slightly more probation than individuals for both animal and human victim cases. Subsequent findings showed that regional variation occurred when comparing the number of cases as well as the mean per case fines, probation, and incarceration in both victim type cases for both offenders. Finally, it was found that variations occur from year to year with no general pattern of increase or decrease. This was found for both offender types in cases with either an animal or human victim. These results imply the idea that more value is placed on human victims than animal victims. It also implies that certain offenders will receive more punishment for harming like victims. Regional variation was found to occur in these cases, which is consistent with the literature on criminal sentencing. The yearly variation, however, was unexpected. Overall, these results demonstrate the complexity of sentencing environmental criminal cases.

CHAPTER I

Introduction

As the world progresses, so do the types of crimes as well as the types of criminals and thus criminal justice has to evolve. Environmental crime is one example of a type of crime that has only relatively recently become the focus for some criminologists (Lynch, 1990). These researchers are known as green criminologists. Traditionally, criminologists use the word environment in reference to the control of crimes in public (Lynch et al., 2013). Green criminologists use the term environment in a more ecological sense. Green criminology research is expanding and recently has begun to encompass the three major areas of criminal justice inquiry; policing, courts, and corrections (Walters & Westerhuis, 2013). Like the origins of criminology, green criminology is multi-dimensional and interdisciplinary (Brisman & South, 2013; Jarrell, Lynch, Stretesky, 2013; Ruggiero & South, 2013). Green criminologists conduct research that utilizes the fields of criminology, biology, ecology, geology, geography, policy and law research, among others. It has only become an organized area of criminal justice in the last decade. Before the term green criminology was used, those who researched this topic used many names, like conservation criminology, as an attempt to better describe their research. It was not until the 1990s that the title green criminology was first established. It still took nearly two decades to consolidate the other labels under the name green criminology and establish a working group of green criminologists.

Dr. Michael Lynch first coined the term “Green Criminology” in 1990 and defined it as a field that should research “environmental destruction as an outcome of the structure of modern industrial capitalist production and consumption patterns” (Lynch,

1990; Jarrell, Lynch, & Stretesky, 2013). Lynch argues that capitalism and nature contradict one another (Lynch et al., 2013). The Treadmill of Production can be used to examine this contradiction (Lynch et al., 2013). After World War II, industrialization moved away from human labor and began implementing mechanical labor in its place (Lynch et al., 2013). These mechanical forms of labor were more chemical and energy-intensive thus producing large amounts of pollution (Lynch et al., 2013). This became the major worldwide turning point from environmental harms being localized to being widespread. Now environmental crimes are acknowledged to be some of the most devastating events in history, killing millions of animals and thousands of humans in a single event (Burns & Lynch, 2004; Kahn, 2007; Boyd, 2008; Bullard et al., 2009).

Despite the reliance mankind has on the environment, there have been very few studies on criminal activities that produce environmental harm. These studies are widespread in their topic area due to the vast nature of green crimes. Like mainstream criminology, some researchers focus on victims while others focus on offenders. Research is also conducted on the events as they relate to ecological harm and natural resource management while other research focuses on the laws and policies that are in place to better protect the environment. Though this research seems to vary, and only partially relate to one another, green criminologists study these topics under the umbrella of criminal justice. By combining these areas of study, green criminology focuses the research so that the big picture can be understood. Even though a variety of research exists, there is very little conducted on each topic. In mainstream criminology there are thousands of studies conducted on drug abuse and therefore a greater understanding of drug abuse exists. Green criminology has a large number of topics to cover and very few

people doing so. One of the least researched topics in green criminology is sentencing practices for environmental crimes; and even less studied is the Environmental Protection Agency's (EPA) criminal prosecution of offenders. This demonstrates the need for more research to be conducted in the field of green criminology.

The literature on criminal sentencing covers a diverse number and types of crimes. Environmental criminal sentencing, by comparison, has received little attention in the published research. These empirical studies on environmental crime and sentencing are generally focused mostly on white-collar offenders, with the occasional study focused on the incarceration of these offenders. This research focus is consistent with the assumption that white-collar offenders most commonly commit environmental crimes though this pattern is not consistently validated in all studies (Cohen, 1992). Nonetheless, when increasing aspects of environmental crime are associated with white-collar crimes, these cases are commonly grouped with white-collar crime research. With the emergence of green criminology as a distinct perspective in the field of criminology, however, more research is using green criminology as the foundation for examining many aspects of environmental crimes. The current research on the types of sentences given by the EPA to corporate or individual offenders who commit environmental crimes in the U.S. adopts the perspective of green criminology as its theoretical foundation. This study has the potential to contribute to the field of green criminology as well as the overall knowledge regarding criminal sentencing.

Thesis Overview and Hypotheses

This study will focus on the sentencing received by corporations and individuals

who were prosecuted criminally by the Environmental Protection Agency for the fiscal years 2001 – 2011. There are two types of cases that will be studied in this research, those with animal victims and those with human victims. Additionally, these victim types will be compared by the two types of offender, corporate and individual. Finally, an inquiry into regional variation, as well as yearly variation, in sentences received for both offender types will be compared by victim type.

This study will address four hypotheses:

- 1) Cases involving a human victim will receive greater fines, more probation, and longer incarceration than cases involving animal victims.
- 2) Corporate offenders will receive greater fines and longer probation than individual offenders.
- 3) There will be regional variation in the sentencing of similar offenders in like victim cases.
- 4) Finally, there will be a general increase in the mean amount of fines, probation, and incarceration over the eleven-year time span.

The second Chapter reviews the current literature in the field. Chapter III describes the data and the analysis used. In Chapter IV, the sentences given over the eleven-year span are addressed. Chapter V provides a discussion of the results found in Chapter IV. The final Chapter includes conclusions as well as the limitations of the study and the future research implications.

CHAPTER II

Literature Review

In the last few decades environmentalism has become a widespread movement, though it is not a new concept (Jarrell, Lynch, & Stretesky, 2013). In many countries around the world, *environmental harm* is becoming a criminal offense (Hall, 2012). Before the public demanded environmental protection, the groups most concerned about environmental harms were those who were directly impacted (Chen et al., 2013; Martin et al., 2013). At the start of the environmental movement's popularity, the general public was still blind to much environmental harm. Some might care about the decrease in the polar bear population while not knowing that their water was being contaminated by pollution (Kentmen Cin, 2013). As the movement grew, groups began to form with the purpose of protecting the environment. Some of these groups took radical action and, in some cases, were even considered to be terroristic (Carson, LeFree, & Dugan, 2012). However, this is not true for most of the groups; in fact many organizations are committed to peaceful actions and use fundraising and legal means to protect the environment. Some of the most common types of groups are animal advocacy groups; while others have varied interest (Beirne, 1997a). More of these groups form as the publics' knowledge of the long-lasting harms of environmental crimes increases (Williams, 1996). Overall, these harms can be vast and therefore are difficult to define and measure (Burns & Lynch, 2004; Jarrell, Lynch, & Stretesky, 2013)

As stated above, with the development of the industrial world came new types of environmental harm (Beirne & Perry, 1994). Green criminology uses a wide definition of harm, which encompasses harms to humans, animals, and the environment in general

(White, 2011). O’Hear (2004) divided environmental harm into seven types: immediate physical harm, future physical harm, emotional distress, disruption in social and economic activities, remediation cost, property damage, and ecological damage. These harms can vary in severity from aesthetic impairment to the death of humans and animals (Walters & Westerhuis, 2013) and can range from localized harms to global impacts (Gibbs et al., 2010). Several environmental events in the past have harmed both humans and animals on a large scale. One example of an event that killed thousands of humans and animals is the 1984 chemical release in Bhopal, India. This incident illustrated how devastating an environmental event could be to both humans and animals (Kahn, 2007). A more recent example would be the British Petroleum oil spill that caused the deaths of eleven humans and countless animals (Jarrell & Ozymy, 2012). Though these large-scale events are more rare than their smaller scale counterparts, all environmental crimes can have a lasting effect on the environment and the world. Events like Bhopal and the BP spill have brought an increased amount of publicity to environmental crimes (White, 2009).

Research has shown that environmental crimes cause more deaths and injuries than street crimes as a whole (Burns & Lynch, 2004; Kahn, 2007; Boyd, 2008; Katz, 2012). Over 7 million people around the world die each year from pollution related harms (Bullard et al., 2009). The environmental crimes that receive the most attention are those where an immediate effect can be seen. Some environmental events have immediate effects while others are slow developing and cannot be immediately measured in terms of their long lasting impact (White, 2008 & 2009; Katz, 2012). For example, crimes that consist of releasing large amounts of pollution over time are large-scale and long lasting,

yet no immediate effect can be seen; therefore, little attention is paid to the event. Typically, the events that have long-lasting effects that are not immediately seen are called “creeping disasters” (Williams, 1996). Green criminologists research these events by examining the victims, offenders, type of crime committed, and the lasting effects to the environment.

Most green criminology research is presented in books and as case studies (Beirne & South, 2007; Sollund, 2011). Though these cases studied commonly lack theoretical foundation (Lynch et al., 2013) or at least a single theoretical framework (Clifford, 1998), this has not prevented green criminologists from developing classification schemes to address environmental crimes. For example, South and Beirne (2006) suggest two types of green crimes – primary and secondary. The primary type of green crime refers to the direct impact on the environment such as illegal dumping and air pollution while the secondary type refers to ignoring regulations resulting in environmental harm (South & Beirne, 2006). In fact, many environmental crimes are crimes of omission (Huisman & van Erp, 2013).

Animal and Human Victimization in Environmental Crimes

Victimization is a widely studied subject when it comes to street crimes, yet much more research needs to be conducted in the area of environmental victimization, both animal and human. Due to their variation, environmental crimes often do not neatly fit into established crime reporting such as murder or rape. This inconsistency is also reflected in the number of victims and victim types (White, 2011). Green crimes typically have a higher mortality rate than street crimes for both humans and animals,

since many of the human victims are affected over long durations (Jarrell, Lynch, & Stretesky, 2013). Some of the largest environmental crimes have been committed by corporations, which tend to be ignored by traditional victims' rights advocates (Moore & Mills, 1990; Stretesky & Lynch, 1998; Fattah, 2010; Hall, 2012; Jarrell, Lynch, & Stretesky, 2013). Both the law and research often neglect environmental crime victims.

Animal Victimization

Humans have relied on animals for centuries and have exploited them for their own gain (Ascione, 2008; Wyatt, 2013). First, animals were used as a means of survival such as food or protection, then as a means of companionship. Years ago the law protected only certain animals; these were mostly farm animals viewed as property (Beirne, 1994). Many of the first laws that protected animals were actually based more on human morality rather than animal welfare (Pearson, 2005). In some countries, animals could actually be prosecuted for harming humans (Beirne, 2011a). This led some researchers to ask the question, if animals can commit crimes, are humans just animals (Beirne, 1995)? More recently, animals have evolved into a companion role for most people, though many animals are still used as a means of survival.

As animals grew in status and importance, so did the research about their abuse. Much of the research on animal victimization in environmental crimes is still limited and only examines certain aspects of the topic. Most animal victim research, for example, centers on domestic animal abuse and how it relates to future criminality (Arluke et al., 1999; Beirne, 1999; Ascione et al., 2007; DeGue & DiLillo, 2009; Patterson-Kane & Piper, 2009; Frasch et al., 2011; Vaughn et al., 2011; Fremouw et al., 2012). Beirne (1997b & 2007) as well as Hensley, Tallichet, and Dutkiewicz (2010) found that animals

are abused violently, psychologically, sexually, and emotionally. Only recently have several of these harms been considered to be animal abuse. Beirne (1997b) argues that bestiality should actually be called Interspecies Sexual Assault due to the helplessness of many animals. However, the most common form of animal abuse researched is physical harm to the animal. Faver and Strand (2007) found that abusing animals could even be done to intimidate others in the household, and in doing so the animals were often severely harmed. As a result, most animal harm studies appear in the area of family violence (Beirne, 2002).

Green criminologists also look beyond domestic animal abuse to examine harms against animals as a result of environmental crimes, including wildlife; which is arguably the least protected and researched group of animals. Beirne (2011b) states that environmental crimes and animal issues have intersected throughout history. This area of research has grown as the public's interest and relationships with animals has matured. It was not until the 1970s that animals gained traction, due in part to the emergence of socio-biology research (Beirne, 1995). Previously, it was discussed that some harms are still not considered illegal, there are still many projects worldwide that effect animals in a devastating way that are completely legal (Boekhout van Solinge, 2010). Such projects include the clearing of forest and wetland for development (Boekhout van Solinge, 2010). Countries that lack environmental enforcement, and whose population is growing, are often the culprits of such actions. Lawler et al (2002) found that these harms can dramatically effect the survival of certain endangered species. Even today there is little enforcement purely dedicated to the protection of wildlife (Nurse, 2012).

Human Victimization

Since the early 1980s, criminologists have studied human victimization at length, yet little is conducted in the area of environmental victimization. Human victims are more rare than animal victims in environmental crimes. This does not mean that there are few human victims as a result of green crimes. Humans are greatly impacted by environmental crimes (Martin et al., 2013). Most green crimes that impact humans result in injury, sometimes causing death over time. Katz (2012) found that there are many instances of environmental releases causing cancer later in life even though there were no immediate measurable effects seen. Cases where humans are immediately killed tend to be more rare in environmental crimes (Lachenmayr et al., 1998). This is one of the reasons green crime victims are rarely studied by criminologists.

Mainstream criminologists often overlook these human victims; in fact, many environmental crimes are thought to be victimless by the general public (Jarrell & Ozymy, 2012). Often, human victims are of low socio-economic status and possess little to no recourses to combat the harms they experience (Jarrell, Lynch, & Stretesky, 2013). These victims can be affected by creeping disasters and receive little attention, both academically and publicly, because there are little to no immediate deaths. Due to the varied nature of environmental crimes, both victims' and governments' response to these crimes varies (White, 2009). Hall (2012) found that in several countries, victims of green crimes receive little of the aid and/or compensation street crime victims receive. It is left to green criminologists to research animal, human, and the environment itself as victims of environmental crimes.

Pursuit and Enforcement of Environmental Crime Cases

There are many problems when policing, prosecuting, and even researching environmental crimes. One problem is whether environmental crimes are prosecuted fairly or if other factors have influence on the case outcomes (Malley et al., 2012). Some research has shown the presence of bias when deciding whether or not to take action against an environmental crime. Malley's et al. (2012) research found mixed results of bias (i.e. racism) in assessing fines and in the amount of fine given. Lynch et al. (2010) and Malley et al. (2012) found that crimes committed in communities of minority and low income were less likely to be fined than those of the majority and middle to higher income communities. This means that certain communities are more likely to be targeted when an offender commits a green crime. If a company is going to commit a crime such as illegal dumping, and there is a known area of lesser punishment for that crime, the companies will start targeting those areas in order to lower the risk and increase the reward (Lynch et al., 2010; Malley, et al., 2012). This demonstrates a lack of environmental justice because victims are not being treated equally (Bullard, 1994; Jarrell, Lynch, & Stretesky, 2013).

One problem facing green criminologists is the debate about environmental crimes with mainstream criminologists. Adshead (2013) discusses how there are many researchers in mainstream criminology who argue that environmental crimes lack a *Mens Rea*. *Mens Rea* refers to the guilty mind and is an important part of proving guilt in court. Green criminologists argue that most environmental offenders do have *Mens Rea* and know that their actions are illegal (Adshead, 2013). There are some cases in which the green crime truly was unknowingly committed; this can be compared to a

manslaughter charge. These accidents can still have devastating and long-lasting effects on the environment. Another argument made by mainstream criminologists is that environmental criminals are quasi-criminals because green crimes do not always directly impact the lives of individuals with an immediate consequence (Adshead, 2013).

Another problem is the cross-disciplinary aspect of green criminology. Not only are environmental crimes studied by criminologists they are also studied by biologists, environmental scientists, political scientists, geologists, ecologists, and several other disciplines (Cooney, 2006). These disciplines often use a different approach to study environmental crimes and their impacts on the world environment (Campagna et al., 2011). Huang et al. (2010), for example, have shown that even a slight amount of oil dumped into the ocean can affect the entire food web. These studies can aid in the understanding of environmental harms; but without green criminologists there would be no understanding of the criminal aspect. Green criminology is one of the only fields that seek to examine all types of research to better understand and protect the environment.

Finally, one of the largest problems facing environmental crime policing and prosecution is the multi-jurisdictional nature of environmental crimes. This multi-jurisdictional nature can create turmoil among investigators and prosecutors (Cooney, 2006). Not only does this make investigating environmental crimes more difficult, it also makes prosecution more difficult (Cooney, 2006). Prosecution problems continue when deciding what court to try the case in. Environmental crimes can be tried in criminal, civil, or administrative courts and therefore have a wide range of possible outcomes (Boyd, 2008; Burns et al., 2013). State and local agencies can investigate and prosecute these crimes; however, when the crime crosses jurisdictions, which it often does, the EPA

can be contacted to take the case (Freyfogle & Goble, 2009). The EPA has the power of the federal government to investigate and prosecute environmental crimes (Lazarus, 1994).

The Role of the Environmental Protection Agency

As more environmental crimes were committed the nation began to demand that the environment receive protection from those causing the harm. This increased care for the environment really started in the 1970s (Rabkin, 2014). President Richard Nixon established the Environmental Protection Agency (EPA) on December 2, 1970 in order to regulate environmental policies and laws (EPA, 2014). The creation of the EPA placed all environmental issues under a single authority (Bearden et al., 2011). Many councils and commissions held by other departments were taken and compiled into this new agency (EPA, 2014). Nixon made it clear when it was established that the EPA was to have total control and power over all environmental issues and policies for the entire United States of America as well as its territories and commonwealths. The EPA grew in strength as more environmental laws were added over the next few decades. In 1983 the EPA had twenty-three investigators but over the next seven years that number grew to 110 (Lazarus, 1994). The FBI even started devoting more of its investigators and special agents to environmental crime cases (Lazarus, 1994). To better organize the new agency's investigations and prosecutions the nation was divided into ten regions (Lazarus, 1994; Bearden et al., 2007; EPA, 2014). (See Figure 1). The regions vary in size from containing two states and two territories, Region 2, to containing eight states, Region 4.

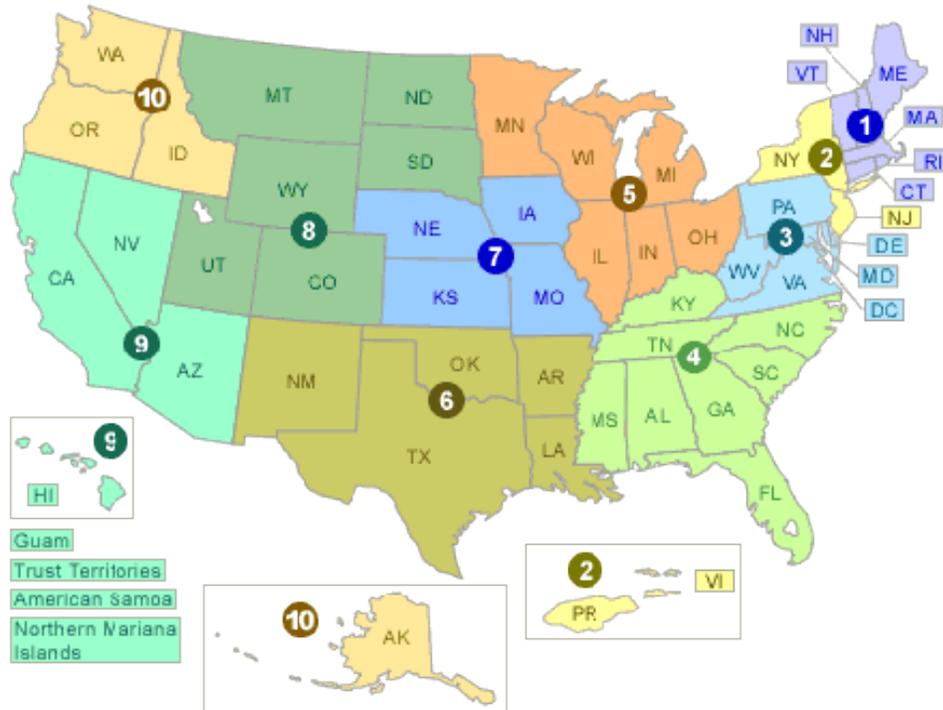


Figure 1. EPA Regions Map (EPA, 2014).

The EPA possesses the power to respond to environmental events as well as lend aid to states and local governments for pollution control programs (Bearden et al., 2007). It also has the power to work with local and state law enforcement to investigate environmental crimes within their regions (Lazarus, 1994). The EPA uses a variety of laws to protect the environment including the implementation of state and local laws to prosecute environmental crimes. Some state and local environmental laws have more strict guidelines, which is why the EPA uses them to try some cases in place of federal laws. Some of these federal laws were established at the end of the nineteenth century while others were passed anywhere from the 1950s to the 1980s (EPA, 2014). Some laws specifically address animals or even specific species while other laws are for the general protection of the air, water, and/or soil. Many of these laws have evolved since their creation and have gained strength in order to better protect the environment.

Pertinent Environmental Standards

Environmental laws have been around for decades and have often been reformed and made stronger as the public's interest in the subject matures. With the change in the public's attitude regarding the environment has come a change in social norms. Martin et al. (2014) shows that it is important to individuals that they follow social norms when it comes to environmental protection. The relatively new norm of living "green" has become a widespread phenomenon. This lifestyle, however, is limited to developed countries. Not only do these countries have environmental laws in place, they also have citizens with the means to follow the social norm of living green. Many underdeveloped countries lack laws protecting the environment, not to mention the means of living a green lifestyle (Jorgenson, Dick, & Shandra, 2011). Even some corporations are starting to follow these social norms. Interestingly, more money is now spent on private environmental compliance inspections than the entire EPA's enforcement office indicating that some corporations are dedicated to being green (Vandenbergh, 2013).

A number of federal laws are used in the defense of the environment; these include: the Clean Air Act, the Clean Water Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Resource Conservation and Recovery Act, the Endangered Species Act, the Marine Mammal Protection Act, the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Refuse Act, the Rivers and Harbor Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Toxic Substances Control Act (Bearden et al., 2007; EPA, 2014). As mentioned above, most of these laws have been changed over the years to strengthen environmental

enforcement. Many of these federal laws are broken into different levels of criminal penalties such as whether the act was negligent, knowing, knowing endangerment, or knowing falsification (Burns et al., 2013). The EPA will use a combination of these laws when trying environmental cases. Each law gives the government control over a certain area of the environment or potential harms to it. Many of these laws are the result of others laws changing names or being absorbed into new standards.

In the late 1940s, a massive pollution cloud formed over a Pennsylvanian industrial town killing twenty people and causing 6,000 individuals to become sick (EPA, 2014). From incidents like this the Air Pollution Control Act of 1955 was first created to give federal authority in air pollution cases (EPA, 2014). This act later became the Clean Air Act (CAA). The most recent, and strongest, version of the CAA was passed in 1990 (Bearden et al., 2007; EPA, 2014). In 1970 the CAA was transferred to the EPA's jurisdiction at which time it became the protector of the nations air quality. The Refuse Act of 1899, as part of the Rivers and Harbors Appropriation Act (RHA), was the earliest act for the federal protection of waters in America (Grenig, 2012; FWS, 2014). Through amendments, it later became part of the Clean Water Act (CWA), which was created in 1972 as an amendment to the Federal Water Pollution Control Act (Bearden et al., 2007; EPA, 2014). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) was passed in 1947 and rewritten in 1972 (EPA, 2014). This act gave the EPA partial control over pesticides; this means that state and local governments can still regulate pesticides to some degree. The Resource Conservation and Recovery Act (RCRA) was passed in 1976. This act is a "cradle-to-grave" act, meaning that it covers the entire life of hazardous waste from its' creation to its' destruction (EPA, 2014). The Toxic Substances

Control Act (TSCA) of 1976 gave the EPA authority to require record keeping as well as the testing of chemicals (EPA, 2014). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was a law passed in 1980 and is known as the Superfund (Bearden et al., 2007; EPA, 2014). The law financially allows the EPA to respond to environmental events. This act also makes offenders responsible for cleaning up any damage done to the environment.

There have been laws protecting animals since 1641. In the U.S., Maine was the first state to pass a law against animal cruelty (Moore, 2005). The Endangered Species Act (ESA) was passed in 1973. This act is designed to protect all animals (except for pest insects) and plants that are endangered or threatened (FWS, 2014). Endangered is defined as a species in serious risk of becoming extinct while threatened is defined as a species likely to become endangered. The Migratory Bird Treaty Act (MBTA) of 1918 was a treaty passed between America, Canada, Mexico, Japan, Great Britain, and what is now Russia to protect migratory bird species. The act prohibits the

"pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (FWS, 2014).

The Marine Mammal Protection Act (MMPA) passed in 1972 and was substantially amended in 1994 (NOAA, 2014). The act was passed to protect all marine mammals from different forms of harm caused by human interaction. Similarly, the Bald and Golden Eagle Protection Act (BGEPA) was enacted in 1940 to protect these eagles in their natural habitats. The act protects against not only harming an eagle but also

disturbing one; it does so by using criminal penalties (FWS, 2014). Together, along with others, these laws are used to protect humans, animals, and the ecosystem from environmental harms caused by both corporations and individuals.

Many policies in the U.S. are designed to protect personal property and environmental crimes directly affecting humans (Niles & Lubell, 2012); this old method of environmental protection is considered to be outdated. Niles and Lubell (2012) show that the old methods of making policies for the environment are outdated due to the size of the present issue. This change tends to lag behind public opinion for several reasons. Some theorize that this standstill is due to elected officials' conflict amongst one another while others say that it is due to the bureaucratic process (Lee, 2014). When a new policy is created, it needs to be made at the federal level to ensure fewer problems when investigating and prosecuting green crimes (Cooney, 2006). Even the strongest policies in the United States do not have worldwide jurisdiction to prosecute in other countries; they can only be used to prosecute crime committed on U.S. land or territory (Cooney, 2006). As a result, foreign companies found guilty of environmental crimes in the U.S. are fined, given probation, or forbidden to conduct business within the United States for a period of time or indefinitely (Cohen, 1992). Conversely, American corporations are not always prosecuted when they commit green crimes in foreign countries.

Sentencing in Environmental Crime Cases

One of the areas lacking a decent amount of research is the sentence received for committing environmental crimes (O'Hear, 2004). Environmental crimes have only relatively recently (mid 1970s) become eligible for criminal prosecution (Edwards et al.,

1996) by the Department of Justice (Lazarus, 1994). The EPA was given jurisdiction to try these cases criminally, and only did so when the crime caused significant harm (Lachenmayr et al., 1998). The sentencing for these crimes varied depending on the type of crime committed (Clifford, 1998). One reason for this variation is that environmental sentences were lessened if the offender/s acted in good faith to identify and disclose violations (Lachenmayr et al., 1998). Like all other criminal sentencing, these penalties were, and still are, designed to punish, deter, and in some cases provide restitution to the victims (Nagel & Swenson, 1993).

Environmental criminal penalties include fines, probation, and incarceration. Fines are used to punish an offender without taking away their liberty and therefore are often used in criminal cases (Mastacan & Vladila, 2012). Fines are also a safe choice when penalizing offenders because it is cheap administratively, it brings in revenue, and it can easily be undone if there was wrongful conviction (O'Malley, 2011). For these reasons, fines are one of the most common penalties in environmental crime cases followed by probation. Some researchers suggest that probation teaches violators compliance better than incarceration in environmental crimes (Johnson, 2000). Probation is also used instead of incarceration for first-time offenders (Youngdahl, 1969). Incarceration is the rarest of the three major types of sentences. One reason for this is because corporations cannot be incarcerated but can be fined or given probation (Burns et al., 2013). Individuals who are incarcerated tend to receive relatively short prison terms in environmental cases (O'Hear, 2004).

Corporate Offenders

Many environmental crimes are large-scale and are committed by corporations (Ruggiero & South, 2010). In a study by Shichor (1989) corporate offenders were found to harm multiple victims per crime as well as harm a wide variety of victim types. These large corporations can cause some of the most devastating environmental events the world has ever seen (Kahn, 2007). Massive pollution releases by a corporation can affect hundreds of people and animals that live in close proximity to the release site. There are corporations that use loopholes to get around pollution regulations by calling an excessive release of harmful materials an “upset event” (Ozmy & Jarrell, 2011). These “upset events” can still harm a large number of victims.

White (2010) found that state and local authorities usually investigate small companies whereas large corporations are investigated at the federal level. As mentioned earlier, these corporations cannot be placed in prison, even though they are considered to be individuals by law (Chibe, 2006; Burns et al., 2013). Larger corporations tend to receive large fines, while smaller corporations are more likely to receive warnings (Clinard, 1979). Many of these sentences are at the lower end of the punishment scale due to the nature of the offender (Edelhertz & USNILECJ, 1970). Many corporations are seen as first time offenders even though it usually is not their first-time to commit an environmental crime (Edelhertz & USNILECJ, 1970). The United States uses punishment to deter such offenders, yet the punishments are not significant enough to deter corporations from committing these crimes (Lemkin, 1996). One reason these punishments might not be as significant as expected is because there are no guidelines on corporate monetary penalties. This means the fines corporations receive for committing

environmental offenses are solely up to the courts (Cohen, 1992). Cohen (1992) stated that some penalties for corporations are reduced because the activity is necessary and therefore it should not be deterred. For example, if a corporation was given a fine equal to the amount of damage an oil spill causes, then the process of transporting oil would be deterred, not the crime (Cohen, 1992). Cohen (1992) discusses those who argue that the fines received by corporations are a case of over-deterrence. Many of the fines given, however, do not outweigh the amount of money saved by the corporation for committing the crime in the first place (Lemkin, 1996).

Individual Offenders

Green criminologists agree that environmental sentencing is too relaxed for both corporations and individuals (Adshead, 2013). It is a mistake to assume that in environmental crimes, it is always the powerful harming the powerless (Williams, 1996). Individuals who commit green crimes usually do so on a much smaller scale; however, there are more individuals than corporations and these crimes begin to add up. In a study by Burns et al. (2013) it was discovered that many individual offenders are white-collar offenders that are tried separately from their corporations. Ragatz et al. (2012) found these white-collar offenders were more likely to be educated white males. Individual offenders were prosecuted more than corporations when the EPA first began to use criminal prosecution in the mid-1970s (Lazarus, 1994); this is still true today. Individuals could receive a number of penalties in these prosecutions such as fines, probation, home confinement, community service, and community corrections. After the Sentencing Reform Act of 1984, which increased sentences for white-collar offenders, prison sentences were set as part of environmental crime punishments (Cohen, 1992;

Nagel & Swenson, 1993). There was a provision within this act that allowed individuals to receive a sentence below the minimum punishment if personal responsibility was recognized and accepted (Cohen, 1992). This is one example of how environmental crimes are treated less harshly than street crimes, even though they cause more deaths.

Goodall and Durrant (2013) found the location of prosecution could have an influence on sentencing. Sutton et al. (1978) found this to be true at the state level, however, it was shown to happen more dramatically at the federal level. Pasko (2002) concluded that these findings held true for a wide range of crimes, from street crimes to financial crimes. In a study of white-collar offenders committing savings and loan crimes, Jennings and Miller (2006) found that the Southwest region of the U.S. was more punitive than other regions. Kautt and Mueller-Johnson (2009) discuss the presences of variation in the history and structure of guidelines for sentencing being a major factor for regional variation. These types of regional variation occur for many different reasons. Some cases show variation because of the offender's age (Champion, 1987), while others discuss the "toughness" of the prosecutors and the influence that has on regional variation in sentencing (Harries & Brunn, 1978). Caseload differences in various regions lead to sentencing variation as well (Newberger, 2003).

Like regional variation, yearly variations in sentencing can also occur. This area of research for environmental crimes is nearly nonexistent. Most research in the area of yearly variations pertains to drug crimes and other offenses. Several studies have found variations in sentencing over the years from the same judge (Albanese, 1984). Some of this variation is due to the changing and strengthening of the laws used to prosecute crimes. As mentioned above, most environmental laws used to prosecute green crimes

have substantially changed over time and are now better suited to deal with today's crimes. Sentencing practice must change as crimes change. One of the most apparent sentencing variations happened in the years prior to the War on Drugs and the years following it (Rosenthal & Taxman, 2008). When legislators get "tough" on a certain crime, sentencing increases. This changes from year to year and follows public opinion. New acts are sometimes passed to counteract this variation and make sentencing more uniform over the years (Clarke, 1987). These acts, however, do not stop all variation in sentencing from year to year.

CHAPTER III

Methodology

This research examines the sentences received by corporations and/or individuals who committed and were prosecuted for environmental crimes under the jurisdiction of the Environmental Protection Agency (EPA). All data was secondary, and was collected from the Environmental Protection Agency's Criminal Online Database for fiscal years 2001-2011. Data was collected and the sentences were then compared by victim type, offender type, regionally, and by year. In the current study, there were 972 total cases identified for these eleven years. Each case contained a variety of information relating to the crime committed. For each case, data collection identified a set of common attributes; these included the type of victim (human or animal); the type of offender (corporation or individual); where the crime occurred (one of ten regions); and the year the offense/crime took place. Since there are no standards for how this information is recorded by the EPA, each case contained a different amount of information. Most cases included the laws that the offender/s was convicted under and what sentence they received. However, the descriptive account of the criminal action varied in detail from simply stating that a crime had been committed to giving exact information on location, victims, and prosecution procedures. There were nonetheless several variables consistently collected for each case. Given that the current study focuses on sentencing practices by the EPA, the variables selected were those that were anticipated, based on the review of the literature, to provide insight into the sentence received by corporations or individuals who violated EPA standards.

Variables

One variable collected was the *type of offender*. Cases could contain individual and/or corporate offenders. The number of convicted defendants in each case was documented. This number was further broken down into how many individual and corporate defendants were convicted. A second and third variable collected were the *fiscal year* when the crime was prosecuted and the EPA *region* in which the crime occurred. The EPA divides the U.S. into ten regions, which include all fifty states as well as American commonwealths and territories (See Figure 1). Each region is numbered 1–10 and this region enumeration was collected as one of the variables potentially affecting sentencing outcomes for similar cases. Along with region, the *state* in which the crime occurred was collected. The *type of sentence* received was collected using several categories. The categories included: length of total corporate probation in months, length of total individual probation in months, length of total individual incarceration in months, total amount of corporate fine in dollars, and total amount of individual fine in dollars. Another variable collected was the *type of victim*. These victim types could be classified as human, animal, or no identifiable victim. Along with this, the severity of harm was identified as being death, injury, or evacuation.

Due to limitations in how the data are recorded and managed by the EPA, this research only includes cases with an identifiable victim because this feature gives the most accurate picture of sentencing practices in criminal cases tried by the EPA. The rationale for this decision is based on the supposition that sentences received for harming a human versus harming an animal reflect comparisons about victim importance. Cases with no identifiable victim lack the information necessary to make informed conclusions

regarding sentence variability. For this reason, this study only focused on those cases where a victim was clearly identified. This drops the number of cases from 972 to ninety-three. One of these cases contained both human and animal victims. This case was the only one of its kind and was therefore considered an outlier. The case involved a leaking tank that caught fire injuring eight people and killing 2,600 animals. The corporate fine for this case was \$10,000,525. This was one of the highest fines given in any case. The database did not specify what part of the sentence given was for each victim type. It was decided that this case would not be included with the other cases. This left a total of ninety-two cases, with sixty cases identifying an animal victim and thirty-two cases identifying a human victim.

Using these ninety-two cases, four hypotheses are examined. The *first* hypothesis states that *offenders in cases involving human victims will receive greater fines, more probation, and longer incarceration compared to cases with an animal victim.* Comparing animal victim cases with human victim cases will determine if there is a higher importance placed on a certain victim type. The *second* hypothesis states that *corporate offenders will receive greater fines and longer probation than individual offenders.* This comparison examines if a certain offender type receives more punishment than others. The mean corporate fine and probation per case will be compared to the mean individual fine and probation per case for both types of victims. The *third* hypothesis states that the *sentencing of similar offenders in like victim cases will vary by region.* This will determine if different regions are more likely to give harsher sentences to certain offender types. The regions are compared to one another to find differences in the severity of the sentence in cases with the same types of victims and

offenders. The *final* hypothesis states that *the mean of each type of sentence given will increase over the eleven-year span*. This relationship will demonstrate whether or not more punishment is being given for environmental crimes. In the analysis, the mean fine, probation (in months), and incarceration period (also in months) for both offender types as well as for animal and human victim cases will be compared from year to year.

Analysis

The data for the first hypothesis are analyzed using descriptive statistics. The ninety-two cases are divided by victim type into two groups. The first group includes all cases involving an animal victim while the second group consists of all cases involving a human victim. Mean fines for these two groups are calculated, with the mean fine per case calculated from the total fines for each victim type, human or animal. The total amount of probation in months given for each victim type is also calculated. Additionally, the mean probation per case where probation was given as a sentence was calculated. The total amount of incarceration in months is calculated for each victim type and a mean per case involving incarceration is determined. These totals and means are then compared by victim type.

Similarly, the data for the second hypothesis is divided into two groups based on offender type. The first group contains all corporate offenders while the second group includes all individual offenders regardless of victim type. The total corporate fine assessed is calculated followed by the mean corporate fine per case. This same procedure is conducted for individual offenders using the number of cases where an individual is fined to calculate the mean. Totals and means for probation (in months) for both offender

types are then calculated. The mean corporate probation is determined using the number of cases where a corporation received probation as a sentence. A similar procedure is used for individual offender cases. For this hypothesis only fines and probation are compared since corporations do not receive prison sentences from the EPA. The offender type groups are also analyzed by victim type. The total corporate and individual fines are calculated for both human and animal victim types, as well as the means per case. This analysis is also conducted for probation for both offender types. Totals and means are compared by offender type both in total cases and in like victim cases.

The third hypothesis is tested by determining the number of cases for each victim type in each of the ten regions identified by the EPA. The total cases in each region are converted to a percentage, reflecting the distribution of the ninety-two total cases across these ten regions. The offender types are separated in order to explore whether there is regional variation in the prosecution of environmental crime cases by the EPA during the period under study for either offender type. The mean per case for both corporate and individual fines, as well as probation, for both victim types are calculated and compared by region. Additionally, the mean per case incarceration term is calculated for both victim types by region. This comparison allows each offender type to be compared in terms of the mean sentence imposed in each region for both victim types.

Finally, the data are analyzed by year. The total number of cases for both victim types were examined by year. Offender types are then analyzed separately to determine whether there is an increase in sentencing for either offender type. The corporate mean per case for fines and probation are also calculated for both victim types and reported by year. Similarly, the individual mean per case fines, probation, or incarceration terms for

both victim types are calculated by year. As stated earlier, this procedure allows each offender type to be compared by the mean sentence for each year by victim type.

CHAPTER IV

Results

There were ninety-two out of 972 total cases where an identified human or animal victim was included in the Environmental Protection Agency's (EPA) Online Criminal Database for fiscal years 2001-2011. Sixty cases identified an animal victim and thirty-two cases involved a human victim. Animal victims were either killed or injured while human victims were killed, injured, or evacuated. Fifty-seven cases listed at least one animal killed while only three cases stated an animal had been injured. Nearly seven million animals were listed as killed in the cases that provided an estimate of the death toll. Nine cases stated that a human victim was killed while eighteen cases stated that a human had been injured and five cases involved evacuation. A total of twenty-five humans were killed in the cases that provided an exact death toll. An estimated 254 humans were injured while an estimated 1,065 humans were forced to evacuate. Both individuals and corporations were found guilty of causing the victimization of human or animal subjects. There were eighty-three individual offenders and forty-nine corporate offenders. Three types of sentences were identified, fines, probation, and incarceration. A total of \$169,266,365.64 was assessed in imposed fines across all ninety-two cases. There was a total of 2,244 months of probation given as well as a total of 867.8 months of incarceration.

Hypothesis 1

The *first* hypothesis states that *cases involving human victims will receive greater fines, more probation, and longer incarceration than cases involving animal victims.*

The totals and means for each sentence type were calculated after being separated by victim type. These results are presented in Table 1. The total fine for all sixty cases involving an animal victim was \$36,602,398.68. This was \$96,061,568.28 less than the fine for all cases involving a human victim, which in total was \$132,663,966.96. Fifty-eight of the sixty animal victim cases received a fine making the mean fine per animal victim case \$631,075.84. Thirty of the thirty-two human victim cases received a fine making the mean fine per case \$4,422,132.23. The mean per case difference in fines is \$3,791,056.39. This trend continues when looking at probation totals and means. Thirty-five animal victim cases were sentenced to a total of 1,113 months of probation making the mean per case of 31.8 months. Twenty-four human victim cases were sentenced to a total of 1,131 months of probation making the mean 47.1 months per case. The mean probation per case was one year three months and nine days longer in cases where a human was harmed. The sentence of incarceration shows similar results. The ten cases involving incarceration totaled 154.8 months of prison, or 15.5 months per case, in animal victim cases. There were also ten cases involving a human victim where prison was the identified sentence. The total, however, was 713 months making the mean 71.3 months for human victim cases. This is a difference of four years seven months and twenty-four days per case.

Table 1. Animal vs. Human Victims. A comparison of totals and means for animal victim and human victim cases.

	Total Fine	Mean Fine/Case	Total Probation (Months)	Mean Probation/Case (Months)	Total Prison (Months)	Mean Prison/Case (Months)
Animal Victim	\$36,602,398.68	\$631,075.84 (n=58)	1,113	31.8 (n=35)	154.8	15.5 (n=10)
Human Victim	\$132,663,966.96	\$4,422,132.23 (n=30)	1,131	47.1 (n=24)	713	71.3 (n=10)

Hypothesis 2

The *second* hypothesis states that *corporate offenders in cases will receive higher fines and more probation than individual offenders*. The totals and means per case were calculated for both fines and probation for each offender type. These results are presented in Table 2. Forty-five cases involved a corporate offender while sixty-six cases involved an individual offender. Cases could contain both offender types and/or multiple of the same offender type. In cases where a corporation was present there was a total corporate fine of \$166,540,001.00. Only fifty-nine of the sixty-six cases involving an individual were fined resulting in a total fine of \$2,726,364.64. There is a difference of \$163,813,636.36. The mean per case corporate fine was \$3,700,888.91 whereas the mean per case individual fine was \$46,209.57. Total probation for corporations was 885 months, which was actually lower than the total individual probation, which was 1,359 months. The mean per case probation for corporations was 34 months whereas cases involving an individual who received probation had a mean per case of 30.9 months.

Table 2. Corporate vs. Individual Offenders. A comparison of offender types using total and mean sentencing.

	Total Fine	Mean Fine/Case	Total Probation (Months)	Mean Probation/Case (Months)
Corporations	\$166,540,001.00	\$3,700,888.91 (n=45)	885	34 (n=26)
Individuals	\$2,726,364.64	\$46,209.57 (n=59)	1,359	30.9 (n=44)

Table 3 presents the data on corporate and individual offenders in cases involving an animal victim. The total corporate fine for animal victim cases was \$35,647,650.00 or 21% of the overall total corporate fines. The total individual fine for animal victim cases was \$954,748.68 or 35% of the overall total individual fines. Twenty-five cases involved a corporate fine for harming animals resulting in a mean per case of \$1,425,906.00; whereas forty cases involved an individual fine for harming animals, which resulted in a mean per case of \$23,868.72. Total corporate probation in animal victim cases was 402 months or 45% of the overall total corporate probation. Individuals received a total of 711 months of probation in cases with animal victims. This is 52% of the overall total months of probation given to individuals. As with the overall probation means, corporations received more months of probation per case in animal victim cases than individuals involved in similar cases. Corporations received a mean of 28.7 months of probation per case whereas individuals received 27.4 months per animal victim case.

Table 3. Corporate vs. Individual Offending in Animal Victim Cases. A comparison of offender types in animal victim cases using total and mean sentencing.

	Total Fine	Mean Fine/Case	Total Probation (Months)	Mean Probation/Case (Months)
Corporations	\$35,647,650.00	\$1,425,906.00 (n=25)	402	28.7 (n=14)
Individuals	\$954,748.68	\$23,868.72 (n=40)	711	27.4 (n=26)

Table 4 compares corporate and individual offender sentences in cases involving human victims. The total corporate fine in human victim cases was \$130,892,351.00 or 79% of the overall total corporate fine. The total individual fine for human victim cases was \$1,771,615.96 or 65% of the overall total individual fines. Twenty cases involving a corporation were fined for harming humans yet the mean fine was \$6,544,617.55, which is \$5,118,711.55 higher than the mean corporate fine in cases with animal victims. Similarly, the mean individual fine per case was \$93,242.95, which is \$69,374.23 higher than the mean individual fine in cases with animal victims. There were nineteen cases with individuals that were fined for harming humans. The total corporate probation was 483 months or 55% of the overall total corporate probation. Twelve cases with corporations were given probation making the mean 34.6 months per case. Individuals were sentenced to 648 months of probation or 48% of the overall total individual probation. There were eighteen cases where individuals received probation making the mean 27 months per case.

Table 4. Corporate vs. Individual Offending in Human Victim Cases. A comparison of offender types in human victim cases using total and mean sentencing.

	Total Fine	Mean Fine/Case	Total Probation (Months)	Mean Probation/Case (Months)
Corporations	\$130,892,351.00	\$6,544,617.55 (n=20)	483	40.3 (n=12)
Individuals	\$1,771,615.96	\$93,242.95 (n=19)	648	36 (n=18)

Hypothesis 3

The *third* hypothesis states that *sentencing of similar offenders in like victim cases will vary by region*. The EPA separated the U.S. into ten regions for investigation and prosecution reasons (see Figure 1). Table 5 presents the number of cases by victim type per EPA designated region. Region 2 was the only region that did not contain at least one case of each victim type in the eleven-year time period. This region had the lowest number of cases accounting for only 3.3% of the total cases. When combined, Regions 4 and 5 accounted for 41.3% of the total amount of cases tried for the period, 2001-2011. Regions 4 and 5 both contained seventeen animal victim cases; however, Region 5 contained three human victim cases whereas Region 4 only contained one.

Table 5. Cases by Region and Victim Type. The number of cases by victim type prosecuted in each region.

Region	# of Animal Victim Cases	# of Human Victim Cases	Total
1	4	2	6 (6.5%)
2	0	3	3 (3.3%)
3	1	5	6 (6.5%)
4	17	1	18 (19.6%)
5	17	3	20 (21.7%)
6	2	3	5 (5.4%)
7	8	3	11 (12%)
8	2	3	5 (5.4%)
9	4	6	10 (10.9%)
10	5	3	8 (8.7%)

Table 6 presents mean per case sentencing data for corporate offenders by region and victim type. Region 5 had the most corporate fine cases with a total of twelve; ten were animal victim cases and two human victim cases. The animal victim mean per case was \$1,201,567.00 and the human victim mean was \$4,577,500.00 in this region. Region 9 had the highest corporate mean fine per case for animal victim cases at \$5,011,577.50 while Region 6 had the highest for human victim cases with a mean per case fine of \$21,666,666.67. Region 5 also had the highest number of corporate cases (9) that received probation as part of their sentence. Region 6 had the highest mean probation (36 months) per animal victim case compared to Region 10 with the highest mean probation (120 months) per human victim cases.

Table 6. Corporate Offender Sentencing by Region. The mean corporate sentencing by victim type in each region.

Region	Mean Fine/Case		Mean Probation/Case (Months)	
	Animal Victim	Human Victim	Animal Victim	Human Victim
1	\$3,360,116.67	\$9,075,200.00	20	18
2	\$0.00	\$3,034,499.00	0	48
3	\$25,525.00	\$0.00	24	0
4	\$97,031.25	\$400,000.00	0	0
5	\$1,201,567.00	\$4,577,500.00	31.7	60
6	\$500,400.00	\$21,666,666.67	36	30
7	\$1,091,650.00	\$704,125.00	0	0
8	\$0.00	\$390,000.00	0	24
9	\$5,011,577.50	\$1,164,692.33	30	25
10	\$431,125.00	\$21,001,175.00	0	120

Table 7 presents mean sentencing data for individual offenders by region and victim type. Region 4 had the most individual fine cases with a total of fifteen, all of which were animal victim cases. Region 6 had the highest mean per animal victim case fine at \$191,047.00. The next highest mean, however, was found in Region 5 at \$27,390.50 per animal victim case. The highest mean per human victim case was in Region 7 with a mean of \$612,120.48. The next highest mean human victim case was \$489,678.81 less than Region 7. This was Region 10 with a mean human victim case individual fine of \$122,441.67. Region 5 had the most cases with an individual who was given probation (9). It also had the most cases (5) where incarceration was given as a punishment. The highest mean individual probation per animal victim case was in Region 8 with eighty-four months whereas the highest mean individual probation per human victim case was in Region 2 with seventy-two months. The highest mean incarceration per animal victim case was sixty months in Region 6 and 207 months in Region 7.

Table 7. Individual Offender Sentencing by Region. The mean individual sentencing by victim type in each region.

Region	Mean Fine/Case		Mean Probation/Case (Months)		Mean Incarceration/Case (Months)	
	Animal Victim	Human Victim	Animal Victim	Human Victim	Animal Victim	Human Victim
1	\$10,000.00	\$24,000.00	24	24	29	0
2	\$0.00	\$1,622.50	0	72	0	147
3	\$25.00	\$6,093.25	24	28	0	0
4	\$26,601.51	\$0.00	25.5	0	3.9	0
5	\$27,390.50	\$1,131.00	20	24	14.3	34
6	\$191,047.00	\$0.00	36	0	60	0
7	\$7,731.45	\$612,120.48	12	48	5	207
8	\$8,600.00	\$15,475.00	84	36	0	32.5
9	\$8,360.00	\$31,740.00	40	36	10	15
10	\$2,723.93	\$122,441.67	21	40	0	105.5

Hypothesis 4

The *fourth* and final hypothesis states that *the mean of each type of sentence given will increase over the eleven-year time period*. Table 8 presents the number of cases for each victim type by fiscal year. The year 2011 had the most cases with a total of sixteen, roughly 17.4% of the total cases. This was closely followed by 2003 with thirteen cases accounting for 14.1% and 2007 with twelve cases accounting for 13% of the total cases. There were no cases with a human victim in 2001. The most animal victim cases were in 2011 with a total of ten cases, followed by 2003 with seven cases. Six was the largest number of human victim cases in any single year. This occurred in both 2003 and 2011, which were closely followed by 2007 with five human victim cases and 2006 with four human victim cases.

Table 8. Cases by Year and Victim Type. The number of cases by victim type prosecuted each year.

Year	# of Animal Victim Cases	# of Human Victim Cases	Total
2001	3	0	3 (3.3%)
2002	4	1	5 (5.4%)
2003	7	6	13 (14.1%)
2004	5	3	8 (8.7%)
2005	5	1	6 (6.5%)
2006	5	4	9 (9.8%)
2007	7	5	12 (13%)
2008	3	1	4 (4.4%)
2009	4	3	7 (7.6%)
2010	7	2	9 (9.8%)
2011	10	6	16 (17.4%)

Table 9 presents mean per case sentencing data for corporate offenders by year and victim type. In 2007, a total of ten cases involved a corporation receiving a fine. Six of these cases involved animal victims while the other four were human victim cases. The highest mean corporate fine per animal victim case (\$5,025,000.00) occurred in 2010, while the year prior, 2009, had the highest mean human victim case corporate fine of \$29,006,000.00. The next highest mean fine for a human victim case was in 2010 at \$9,185,142.00. In 2001 only one corporate case received a fine for an animal victim offense but no corporate case received a term of probation. The year 2007 was also the period when the most cases of corporate probation occurred. By contrast, in 2008, there were five animal victim cases with a mean corporate probation of 21.6 months and two human victim cases with a mean corporate probation of twenty-four months. The highest mean per case corporate probation (60 months) for harming an animal occurred in 2002. The following year, 2003, had the highest mean corporate probation (90 months) for cases with a human victim.

Table 9. Corporate Offender Sentencing by Year. The mean corporate sentencing by victim type for each year.

Year	Mean Fine/Case		Mean Probation/Case (Months)	
	Animal Victim	Human Victim	Animal Victim	Human Victim
2001	\$167,000.00	\$0.00	0	0
2002	\$1,641,389.00	\$40,000.00	60	36
2003	\$25,525.00	\$7,810,668.00	24	90
2004	\$35,062.50	\$3,450,300.00	24	0
2005	\$3,529,100.00	\$0.00	36	0
2006	\$2,918,225.67	\$221,062.50	36	13.5
2007	\$437,707.50	\$3,043,886.25	21.6	24
2008	\$1,500.00	\$704,125.00	0	0
2009	\$15,000.00	\$29,006,000.00	0	42
2010	\$5,025,000.00	\$9,185,142.00	36	24
2011	\$22,500.00	\$1,502,500.00	21	42

Table 10 presents mean per case sentencing data for individual offenders by year and victim type. In 2011 there were nine cases involving an individual harming an animal and four cases with an individual harming a human where a fine was imposed. The mean individual fine per animal victim case was \$13,693.00 whereas the mean per human victim case was \$309,981.49, which was the highest mean individual fine for a human victim case. The highest mean fine for an animal victim case was \$100,536.00 in 2006. The highest mean individual probation for a human victim case was fifty-four months in 2003. The highest individual mean term of probation (40 months) for an animal victim case also occurred in 2003. Once again, it was 2011 that contained the most individual probation cases. The longest period of incarceration for an animal victim case was in 2006 with a mean per case of sixty months, while the highest mean period of incarceration for a human victim case was in 2009 with a mean term of 147 months.

Table 10. Individual Offender Sentencing by Year. The mean individual sentencing by victim type for each year.

Year	Mean Fine/Case		Mean Probation/Case (Months)		Mean Incarceration/Case (Months)	
	Animal Victim	Human Victim	Animal Victim	Human Victim	Animal Victim	Human Victim
2001	\$6,033.33	\$0.00	36	0	0.8	0
2002	\$43,735.82	\$40,000.00	16	36	5	15
2003	\$4,609.43	\$122,331.67	40	54	7	105.5
2004	\$19,518.67	\$31,350.00	12	24	36	0
2005	\$92,478.00	\$300.00	24	12	5	0
2006	\$100,536.00	\$10,491.67	24	36	60	32.5
2007	\$7,500.00	\$8,881.67	12	30	0	0
2008	\$48,750.00	\$0.00	24	0	0	0
2009	\$4,370.67	\$1,787.50	36	12	0	147
2010	\$7,750.00	\$0.00	28	0	10	0
2011	\$13,693.00	\$309,981.49	32.5	38.4	10.3	68.75

CHAPTER V

Discussion

The purpose of this thesis has been to describe sentencing outcomes in criminally prosecuted cases tried under the jurisdiction of the Environmental Protection Agency (EPA). It was hypothesized that cases involving human victims would receive higher fines, more probation, and longer incarceration when compared to cases involving animal victims. The second hypothesis stated that corporate offenders would receive greater fines and more probation than individual offenders. Next, it was hypothesized that there would be regional variation in the sentencing of similar cases. The final hypothesis predicted an increase in the mean amount of fines, probation, and incarceration over the eleven-year time span. Overall, this research has the potential to increase the general understanding of sentencing outcomes as they relate to environmental criminal cases in the United States.

Comparing Cases by Victim Type

The first hypothesis test compared animal and human victims in the ninety-two cases studied. It was predicted that human victim cases would receive greater fines, more probation, and longer incarceration than animal victim cases. This hypothesis was confirmed when the sentencing data were totaled and a mean per case was calculated for both victim types. Cases with human victims had a higher total fine as well as a higher mean fine per case. Higher means were expected; however, larger totals for all sentencing categories for human victim cases were unexpected since there were only thirty-two human victim cases compared to the sixty animal victim cases. These findings

suggest society places higher value on human life than it does on animal life.

Around 28% of human victim cases involved the death of a human while roughly 56% of the cases involved an injury and nearly 16% involved an evacuation. By comparison, animal victim cases differed in their percentages of severity. Fifty-seven, or 95%, of animal victim cases involved the death of an animal and only 5% involved the injury of an animal. Reported case details show nearly seven million animals were killed while only twenty-five humans were killed. These results suggest that an environmental crime is more likely to be criminally prosecuted by the EPA only if an animal is killed whereas injuries to humans are sufficient grounds to prosecute. In general, these rather disparate results lend support to the notion that society places a higher value on the welfare of humans compared to animals even though human and animal welfare are interconnected (Ascione, 2008).

Not only does this finding lend support to the idea of human life having a greater value than animal life, it addresses why most animal victim literature is studied for the purpose of predicting future human victimization (Patterson-Kane & Piper, 2009; Frasch et al., 2011; Fremouw et al., 2012). At first glance, one might infer that the mainstream criminological research is dedicated to protecting animals from abuse when in reality animals are studied in order to advance our understanding of human behavior. The published literature includes limited reference to animal abuse from the perspective of animal victimization. Some victimization research compares crimes against animals to crimes against infants, suggesting neither has a voice (Beirne, 1997), while other studies identify animal abuse as a risk factor in family violence (Faver & Strand, 2007; DeGue & DiLillo, 2009).

Fines

Fines were the most common form of punishment. Though animal victim cases make up 65% of the total cases, they only account for 22% of the total cases receiving a fine. The total fines given in animal victim cases were a little more than one-fourth of the total fines given in human victim cases. Fines were present in 96.6% of animal victim cases and 93.8% of human cases. As a sentence, probation was given in 58.3% of animal victim cases and 75% of human victim cases, while incarceration served as the sentence in 16.6% of animal victim cases and 31.3% of human victim cases. When the mean fine per case was compared, human victim cases paid \$4,422,132.23 whereas animal victim cases paid \$631,075.84. This is a difference of \$3,791,056.39 per case. In 95% of animal victim cases a death occurred, while only 30% of human victim cases involved death.

Once outliers are removed the total animal victim fine drops to roughly \$5.75 million dropping the mean per case to just under \$95,000. There were only four animal victim cases that qualified as outliers when the total fine was calculated. These four outlying animal victim cases accounted for over \$30.8 million of the \$36.6 million in total fines. When these cases are not considered, the mean worth of an animal victim drops even lower. The total fine for human victim cases drops to about \$61.5 million with a new mean of around \$1.6 million per case when the outliers are removed. Two outlying human victim cases accounted for just over \$71 million of the original total of \$132.6 million, meaning that over half of the total fine was from two cases alone. One of those cases had the highest fine of all ninety-two cases studied at an imposing \$50 million. All six cases mentioned were corporate fines and will be discussed in a later

section.

Fines were clearly the most common penalty for these environmental crime cases prosecuted by the EPA from 2001-2011. As previously mentioned, fines are a consistently used penalty in environmental crime cases (Stretesky, Long, & Lynch, 2013; O'Malley, 2011; Mastcan & Vladila, 2012). Fines might also be the most popular choice of punishment for two reasons; first, environmental protection can greatly benefit from increased funds, and second, environmental crimes are often considered to be less harmful than street crimes by the public. The use of fines by the EPA seems to satisfy these dual objectives; it increases funds for environmental protection and/or rehabilitation and are considered a less harsh penalty to impose.

Probation

The sentence type that was the most similar in totals and mean usage across all cases was probation. Human victim cases received, in total, only eighteen more months of probation than did animal victim cases. There were thirty-five animal victim cases where probation was given while there were only twenty-four cases where a human victim was involved. Even with eleven more cases, human victim cases still resulted in more (months) probation, resulting in a 16.6 months higher mean per case. As a modest level of sanction, Johnson (2000) states that probation is commonly employed to make offenders learn or understand the importance of being compliant with current laws. When authorities are watching offenders more closely, it can be logically assumed that offenders will pay closer and more attention to the area of law they violated. This preference for probation over incarceration typically coincides with the philosophy that compliance or respect for law is more beneficial to offenders than simply punishing them

(Johnson, 2000).

Incarceration

The largest percentage difference in EPA sentencing can be seen when comparing incarceration. Total incarceration (in months) was 460% higher in human victim cases than in animal victim cases. Overall, there were twenty cases where incarceration was given as a sentence, ten animal victim cases and ten human victim cases. In animal victim cases, a total of 154.5 months of incarceration were given while human victim cases received a total of 713 months of incarceration. The mean period of incarceration per case was 15.5 months for animal victim cases and 71.3 months for human victim cases. This supports the hypothesis that human victim cases will receive longer incarceration terms.

In the six cases involving the death of a human and the presence of an individual offender, only half of the cases had incarceration as part of their sentencing. With a total of ten cases where incarceration was given, seven were cases involving the injury or evacuation of humans. In the forty-three cases where an animal was killed and there was an individual offender present, nine cases had incarceration as part of their sentencing outcome. When just looking at severity, it seems that incarceration is given more in cases where an animal dies; this however can be misleading. Half of the human death cases were given incarceration whereas only 15% of cases where an animal was killed received incarceration. Much of the public is still insensitive to the actual impact of environmental crimes; thus incarceration can seem like an overly harsh punishment for something such as polluting. Bullard et al. (2009) shows that pollution kills millions of humans all around the world every year, but only 21% of the total cases used

incarceration as a punishment. Typically, incarceration as a form of punishment is used in cases resulting in large amounts of harm, but 85% of the cases where an animal was killed did not get any prison time. Since much of the public remains unaware (or unaffected by) the actual impact of environmental crimes, perhaps incarceration is viewed as an overly harsh punishment for harming animals.

Comparing Corporate and Individual Offenders

The second hypothesis compares corporate offenders to individual offenders. It states that corporate offenders will receive higher fines and more probation than individual offenders. This hypothesis was confirmed when examining mean per case for fines and probation. The primary form of punishment in all ninety-two cases for both offender types was a fine. There were a total of forty-five cases where a corporation was fined and fifty-nine cases where an individual was fined. The corporate fine total was \$166,540,001.00, while the total individual fine was \$2,726,364.64. Corporate fines accounted for roughly 98% of the total amount of fines assessed during this eleven-year time span. The mean per case corporate fine was \$3,700,888.91. Compared to the mean per case individual fine of \$46,209.57, this difference supports existing research suggesting corporations are more likely to receive a higher fine than individuals. This difference could be explained by the courts' tendency to only impose fines against offenders who are financially stable enough to pay; therefore, individuals typically do not receive a fine equal to that of a corporation (Hillsman, Sichel, & Mahoney, 1984). For example, Einat (2005) finds that when high fines are imposed on financially unstable individuals, there is the potential that future crimes will be committed to acquire the

means to pay the original fine.

As mentioned earlier, there were six cases that were outliers. There were four corporate outliers in the animal victim cases. In one case, a ship was allowed to crash, releasing oil and killing hundreds of animals. The corporate fine for this case was \$10,000,175.00. The second highest fine assessed against a corporation in an animal victim case was \$10,000,000.00, resulting from a ship crashing into a tower causing an oil spill that resulted in the death of thousands of birds. The third of the four animal victim outlier cases was an airport that released a toxic discharge resulting in a massive fish kill. The corporate fine was \$8,600,125.00. The final animal victim outlier was a case involving the discharge of toxic wastewater resulting in the deaths of over five million fish. This corporate case was fined \$2,231,000.00. For human victim outlier cases, the explosion of the British Petroleum's refinery in Texas that killed fifteen workers and injured 170 others represents the largest criminal fine (\$50,000,000) ever assessed under the Clean Air Act. The second human victim outlier case was the result of a pipeline corporation releasing thousands of gallons of gasoline into a river, which then ignited killing two young boys. The corporate fine in the case totaled \$21,001,175.00. These six cases together account for \$101,832,475.00 or 60% of the total amount of fines assessed in all ninety-two cases.

The second type of penalty imposed by the EPA for both corporate and individual offenders was probation. Twenty-six cases involved a corporation sentenced to probation, while forty-four cases involved an individual who received probation. The total amount of corporate probation imposed was 885 months. This accounts for roughly 39% of the total amount of probation (in months) imposed in all ninety-two cases. The

mean per case corporate probation was 34 months. The total amount of individual probation was 1,359 months. The mean per case probation for individual offenders was 30.9 months. By comparison, the mean per case amount of corporate probation (in months) was similar, though slightly higher, to the mean per case amount of individual probation imposed by the EPA. As mentioned above, individuals typically are not able to pay a fine in the amount that a corporation could (Hillsman, Sichel, & Mahoney, 1984). In response, probation is commonly used in cases involving individuals to compensate for the lack of financial stability (Einat, 2005).

Probation once again is used as a way to gain more compliance with the law (Johnson, 2000). Levin (1984) states that using probation as a penalty for a corporate environmental offender can ensure that the corporation will take actions to aid the environment. A corporate probation program can encourage the corporation to “give back” to the environment instead of just paying what could potentially be a meaningless fine. A fine might be more significant when given to an individual; however, probation can be a good way of punishing offenders who destroy an area of the environment. During their probation, offenders can be required to restore damages to the environment. Such policies lend support to the argument that probation and fines are better-suited penalties for environmental crimes because fines can fund environmental programs and probation offers opportunities for offenders to restore the environment. Generally, incarceration, by comparison, provides few, if any, immediate environmental benefits (Cohen, 1992).

Corporate and Individual Fines in Animal Victim Cases

There were twenty-five cases where a corporation was fined and forty cases where

an individual was fined for harming an animal. The total corporate fine was \$35,647,650.00, resulting in a mean per case corporate fine of \$1,425,906.00. Cases where an individual was fined for harming an animal resulted in a total fine of \$954,748.68 with a mean per case individual fine of \$23,868.72. This is a difference in mean per case fine of roughly \$1.4 million for cases where an animal was victimized. This finding is consistent with the earlier findings, which states that corporations received higher total and mean per case fines than individuals when examining all ninety-two cases.

Corporate and Individual Fines in Human Victim Cases

Similar to cases involving animal victims, the corporate total and mean per case corporate fine was higher than the individual total and mean per case fine in cases with a human victim. Cases with a human victim contained 79% of the total amount of corporate fines, while only accounting for 45% of the corporate offender pool. Likewise, 65% of the total individual fines were assessed in human victim cases, which account for only 37% of the cases where an individual was fined. A total of \$130,892,351.00 was assessed against corporations in cases with a human victim resulting in a mean per case corporate fine of \$6,544,617.55. The total amount of fines assessed in cases with an individual offender harming a human was \$1,771,615.96, resulting in a mean per case individual fine of \$93,242.95. The difference in mean per case fines is roughly \$6.5 million when comparing cases with corporate offenders to cases with individual offenders. This is partial confirmation of the hypothesis that predicts that corporations will receive higher fines than individuals. This was true for human and animal victim cases as well as for all ninety-two cases.

Corporate and Individual Probation in Animal Victim Cases

Fourteen cases involved corporate probation, while twenty-six cases involved individual probation in animal victim cases. The total amount of corporate probation in animal victim cases was 402 months. The mean per case amount of corporate probation was 28.7 months. Similarly, the mean per case individual probation was 27.4 months. The total amount of individual probation, however, was 711 months or 309 months more than total corporate probation for cases harming animals. This comparison shows that both offender types receive roughly the same amount of probation per case when an animal is victimized. This result is consistent with the overall findings that mean per case probation is similar when comparing corporate and individual offenders for all ninety-two cases.

Corporate and Individual Probation in Human Victim Cases

Twelve cases involved a corporation receiving probation for harming a human, while eighteen cases involved an individual receiving probation for harming a human. The total amount of corporate probation was 483 months, resulting in a mean per case corporate probation term of 40.3 months. The total amount of individual probation was 648 months, with a mean per case individual probation term of 36 months. The mean per case probation is similar for both offender types in cases with human victims. These results are consistent with other findings in this study that show similarities between mean per case probation for both offender types. Though the mean per case probations for both offender types were similar, corporations consistently received more probation per case in all victim type cases.

Regional Variations

The third hypothesis examines whether or not there were regional variations in sentencing. The total number of cases, as well as the mean fines and probation per case for both victim types, were calculated and reported by region. The regions ranged in percentage of total cases from 3.3% to 21.7%. Three regions, 4, 5, and 9, contained over 50% of the total cases. This hypothesis was confirmed by the number of cases as well as the means for each sentence given to both corporate and individual offenders. The number of animal cases ranged from zero in Region 2, to seventeen in Regions 4 and 5. Region 2, the smallest region, contained three human victim cases, which was the mean number of human victim cases per region. The mean number of animal victim cases per region was six. Three regions possessed 70% of the total number of animal victim cases whereas Regions 9 and 3 contained 34% of the total human victim cases. Human victim cases range from a total of six in Region 9 to one in Region 4. Six regions contained three human victim cases each.

Regional variations in the sentencing of environmental crime cases prosecuted by the EPA generally conform to the criminal sentencing literature. Pasko (2002), as well as Goodall and Durrant (2013), found that there is regional variation in many types of crime including environmental crime. This variation could be due to the amount of land or population in each region or a variation in the importance of victim type in prosecution. Some regions might dedicate more resources to prosecuting cases with animal victims while other regions focus more resources on prosecuting human victim cases. This study did not examine why sentences vary by regions; it was only focused on describing the variation. The hypothesis that regional variation would be present in sentencing was

confirmed when comparing the ten EPA regions by both overall caseloads and sentencing means.

Regional Variation in Corporate Sentencing

The mean per case corporate fine ranged from \$25,525.00 in Region 3 to \$5,011,577.50 in Region 9 in animal victim cases. This discrepancy was even larger for human victim cases with Region 8 having a mean corporate fine of \$390,000.00 and Region 6 with a mean corporate fine of \$21,666,666.67. Mean per case corporate probation for animal cases did not experience much regional variation, human victim cases, however, showed a wide range. Region 1 had a mean per case corporate probation of eighteen months whereas Region 10 had a mean of 120 months. This finding is consistent with Clinard's (1979) research that corporate offenders are more likely to receive a fine than any other type of punishment.

Regional Variation in Individual Sentencing

Regional variation also occurs when examining individual fines, probation, and incarceration. Individual mean per case fines ranged from \$25.00 in Region 3 to \$191,047.00 in Region 6. Region 5 had the lowest mean per case individual fine with only \$1,131.00 compared to Region 7, which had a mean per case individual fine of \$612,120.48. These differences remain consistent when examining the mean per case individual probation in animal victim cases. Region 7 had a mean per case individual probation of twelve months while Region 8 had a mean of eighty-four months. Mean per case individual probation in human victim cases did not have this sizable variation. However, the incarceration means for both animal and human victim cases did have wide variation. Region 7 had a mean per case incarceration of five months whereas Region 6

had a mean per case of sixty months. Region 9 had a mean per case incarceration term of fifteen months for human victim cases while Region 7 had a mean incarceration term of 207 months.

Yearly Variations

Hypothesis four addressed variation by year. It stated that there would be an increase in mean sentencing over the eleven-year period under study. This hypothesis was not confirmed. The majority of cases occurred in 2011 with a total of sixteen. This was followed by 2003 with a total of thirteen cases. There was no general increase in the number of cases prosecuted for either animal or human victim cases (see Figure 2). In 2001 there were no human victim cases. This was also the year with the lowest percent (3.3%) of total cases. Both animal and human victim cases tended to approximate the mean in each category.

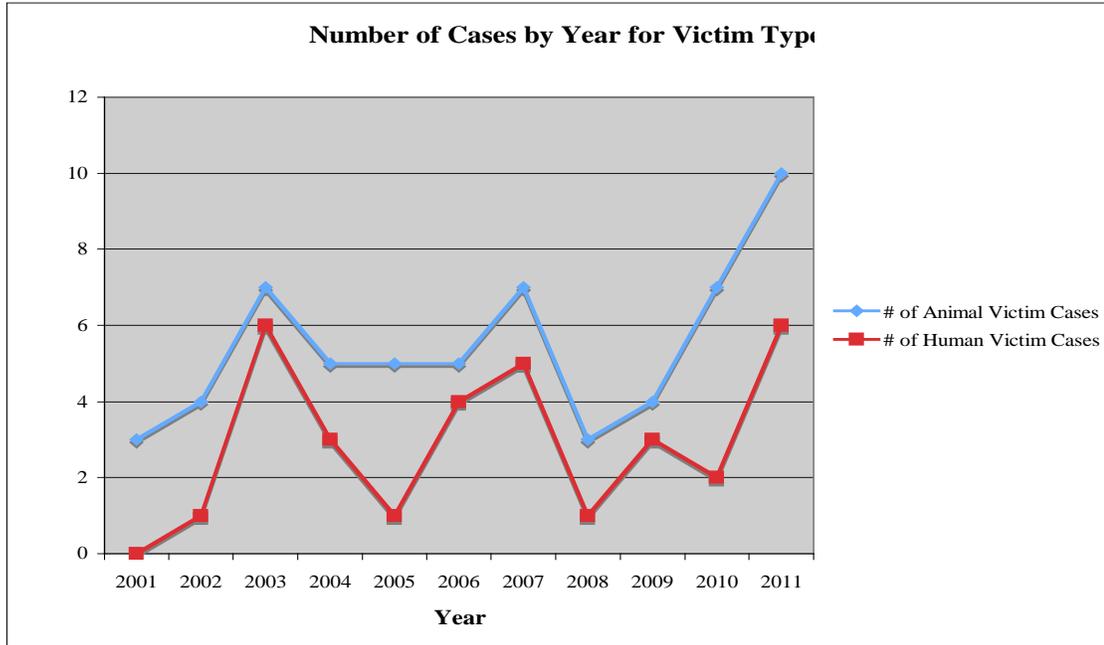


Figure 2. Number of Cases by Year for Victim Type.

Yearly Corporate Sentences

This variation continued when observing the mean per case corporate fine and probation. Both sentence types widely varied but with no observable pattern of increase. The mean corporate fines for animal victim cases by year, if placed in order from smallest to largest, would be 2008, 2009, 2011, 2003, 2004, 2001, 2007, 2002, 2006, 2005, and 2010. For human victim cases it would be 2002, 2006, 2008, 2011, 2007, 2004, 2003, 2010, and 2009. Years 2001 and 2005 had no corporate fines given. These means are inter-dispersed and clearly show no general increase. Additionally, the means for corporate probation demonstrated a similar pattern of inconsistency but no trend toward an increased usage by year. The highest mean per case corporate probation for animal victim cases occurs in 2002 while the lowest occurs in 2011. For human victim cases the highest mean per case corporate probation occurs in 2003 and the lowest in 2006.

Yearly Individual Sentencing

A similar pattern is found when examining the mean for individual cases receiving fines, probation, or incarceration. The means for all three sentencing types varied but showed no pattern of steady increase by year. The highest mean individual fine for an animal victim case occurred in 2006 whereas the lowest occurred in 2003. For human victim cases, the highest mean fine was in 2011 and the lowest was in 2009. Similarly, the mean individual probation varied from year to year. The year with the highest individual mean probation was 2003. This was true for both human and animal victim cases. The largest animal victim case incarceration term occurred in 2006 while the largest human victim case term was in 2009. This inconsistent pattern in sentencing, where neither the use of fines, probation, or incarceration increased from 2001-2011, does not support the fourth hypothesis.

It was theorized that with more public concern for the prosecution of individuals or corporations for committing environmental crimes, there would be an increase in punishment. However, the sentences given by the EPA for the eleven-years under study does not support this idea. It was predicted that the number of cases as well as the mean sentences would increase as public awareness of these crimes increased over time. Given that there is an increased awareness of environmental issues, especially those seen as harmful (Jarrell, Lynch, & Stretesky, 2013), it is curious that this trend for more cases being prosecuted was not supported by the data for 2001-2011. This lack of a general increase in cases convicted and sentences given (fines, probation or incarceration) could be due to the lag effects that courts and prosecutors often exhibit (Cohen, 1992; Lee, 2014). The mean sentences seem to vary by year as dramatically as they do by region.

This yearly variation is consistent with the literature, which shows that even the same judge will give a variety of different, often disparate, sentences for the same crime from one year to the next (Albanese, 1984).

CHAPTER VI

Conclusion

The results for animal versus human victim cases were consistent throughout the study. Environmental crimes resulting in the victimization of an animal repeatedly received lower fines, fewer months of probation, and shorter terms of incarceration. Cases where a human was victimized not only received higher penalties but also were responsible for 78% of the total fines, 50% of the total probation given, and 82% of the total incarceration period despite representing only 35% of the total cases. This demonstrates a potential bias towards human victims. An inference can be made in favor of the idea that society places a higher value on human life. As stated before, humans have exploited animals for centuries; the problem has become the level at which this exploitation is occurring (Wyatt, 2013). This is not a surprising result, but it does point to the lack of society's understanding of how fragile the ecosystem has become. As South (2011) suggests, "The planet is losing 50 species a day and 46% of mammals and 11% of birds are said to be at risk. By 2020, 10 million species are likely to become extinct."

Through genetic research, biologists have shown the large impact the death of a single animal can have on an endangered species' population. Though laws are in place to protect these animals, in many cases, the penalties are not equal to the biological damage. It should never be expected that the death of an endangered animal would warrant more punishment than the death of a human; however, the punishment should at least match the crime in severity. Overall, sentences are commonly used to deter future crimes and one of the three components of deterrence is that the severity of the

punishment should match the severity of the crime. Often the justice system uses overly severe punishments to counteract the absence or diminished effect of two additional components of deterrence, certainty and celerity. This over-deterrence can be seen in many types of crimes (Apel, 2013). It can be argued, however, that in the case of animal victimization, there is the potential for under-deterrence.

Currently the International Union for Conservation of Nature and Natural Resources (2014) has 6,451 species on the endangered list, 4,286 species on the critically endangered list, and 61 species that are extinct in the wild although there are still living specimen in captivity. When a single event kills over 5 million fish, and an incalculable number of other organisms, severe punishments should be given. The current study shows that this is not the trend in national criminal prosecution, especially by the Environmental Protection Agency (EPA). Public concern is growing, but due to the lag of law and policymaking, protective intervention could be too late to make a difference. Clearly a change needs to be made. Using the laws that are currently in place at both the federal and state levels would be an appropriate beginning point to increase the protection of the environment. The EPA data consistently shows a preference in human victim cases for all sentence types; this is not the area that needs improvement. The data demonstrates a variation (if not lack) in sentencing severity in animal victim cases.

This study shows that corporations were given higher fines and a larger mean per case probation than individual offenders. Corporations are treated as individuals by the law yet they cannot receive the same punishments; in fact they are free from the harshest level of punishment, incarceration. When they receive higher fines and longer periods of probation per case, one might believe that this is to make up for the fact that the worst

punishment cannot be applied. Stretesky, Long, and Lynch (2013) found that fines at any amount tended to not deter corporations from committing environmental crimes. When the total amount of money a corporation is worth is taken into account these punishments become largely an inconvenience rather than a punishment (Lemkin, 1996). This is one reason that corporate probation is imposed for environmental cases.

Though corporate green crimes can be some of the worst possible, they are still the minority in environmental crime cases tried by the EPA. Focusing on corporations can divert much needed attention away from the individual offender (Cohen, 1992). Individual offenders might easily avoid committing the crime if their knowledge on the subject was increased. Probation is one potential way of doing this. Another way would be more public education on the environment through programs funded by environmental fines. This is not to say that incarceration should be forgotten as a punishment. There are many environmental crimes where incarceration should be the punishment according to basic sentencing standards such as the death of a human.

This data shows a great deal of regional variation when examining the sentences received by both offender types as well as the total number of cases for each victim type. This was expected due to the regional variations in other types of crime. Different regions appear to focus on different victim types. Regions 4 and 5, for instance, contained seventeen animal victim cases each while Region 2 contained none. It might be said that in New York and New Jersey, or Region 2, there is a great emphasis placed on convicting offenders who harm humans rather than animals. As mentioned above, this variation could be due to a wide variety of reasons. There are many factors including the judgment of prosecutors, judges, and juries (Albanese, 1984), or the population to

wildlife ratio in these regions.

This study also hypothesized that there would be a general increase in all mean sentences from year to year and over time. However, analysis found that the means differed but with no general trend in either direction. A general increase in the number of cases over time, as well as the harshness of which these cases are punished, was hypothesized due to the increased attention that environmental crimes have been receiving (Johnson & Scicchitano, 2012). There have been instances in the past where harsher punishments were established after the public's interest increased (Rosenthal & Taxman, 2008). This increase in punishment was not present in the EPA's prosecution of criminal environmental cases over the eleven-year period examined in this study. This could be explained by the normal lag period lawmakers and prosecutors experience when the public demands new legal standards (Cohen, 1992; Lee, 2014).

Limitations

Data for this study was collected from the EPA's Criminal Online Database. As a secondary source of the EPA's prosecution of environmental crime cases, the data have several limitations. One, the EPA uses no set guidelines or standards for identifying what type of information should be included in each case summary. Generally speaking, there are different amounts of detail for each and every case. Consequently, when this data was collected for the current research, judgment calls by the researcher were made regarding how to handle cases where certain pieces of missing or implied data occurred. Due to this inconsistency in the data, incomplete cases had to be eliminated from the analysis. For example, one case was excluded in the analysis due to a lack of specific

offender related information; the file description vaguely stated that a corporation and an individual were found guilty of violating the Clean Air Act (CAA) and they were sentenced to pay \$50,000.00 in fines. To include the case, multiple judgment calls would have been required to determine whether the fine was to be split evenly, whether each offender was sentenced to pay \$50,000.00, or if perhaps the fine was only assessed against one offender and not the other. Overall, the most accurate data descriptions were given in the cases where a victim was identified. For this reason the research only included ninety-two cases with an identifiable victim.

The general lack of consistent case details in the EPA's Criminal Online Database also precluded the research to examine and report sentence variation by number of victims. As noted elsewhere, this lack of detail is why only ninety-two cases were studied. All ninety-two cases specifically stated that an animal or human was killed, injured, or forced to evacuate; however, not all cases provided the number of victims affected. For example, a case might report that there was a fish kill as a result of the crime while another case would say there were 5,000 fish killed, and yet another case would state that a fish kill occurred over 8 miles. Including such multiple reporting methods typically skews the death, injury, and evacuation tolls. The numbers reported in this study were only from cases where the exact number of victims was recorded. This means that the number of victims reported in this study is a low estimate of the actual number affected by these crimes. In addition to a lack of an identifiable victim in the case details, one case identified both an animal and a human victim and was therefore removed from the analysis. Without specific victim details, the analysis of similar cases became problematic. For these reasons, these cases were considered outliers and

eliminated from the current study.

Additionally, this study would have been improved by the examination of the relationship between the indictment used and the sentence received by corporate or individual offenders. Given the data, this comparison was not possible since most offenders were convicted using multiple charges of varying degrees that were not identified in the sentencing section of the EPA data. For example, one case might state that an individual was charged and convicted of violating the Clean Water Act (CWA), the CAA, the Endangered Species Act (ESA), and the Migratory Bird Treaty Act (MBTA), yet when the sentences were recorded they were not documented by charge, only offender. In this example the individual was convicted of violating all four laws and received twelve months of probation and a \$5,000.00 fine. However, there is no way of determining which laws' sentencing standards were used or if all four were invoked, due to how the data were recorded.

This study is also limited in the conclusions that can be drawn from the results. This research only focused on federal criminal cases tried under the jurisdiction of the EPA. This study is one of the first of its kind and therefore it was decided that a large picture of federal criminal prosecution in cases involving an identified victim was the best data to describe. Only the most serious environmental cases are tried criminally, as most fall into the area of administrative law (Lachenmayr et al., 1998). Since there is little published data on environmental crime and sentencing, it seemed prudent to first study the most serious offenses. Additionally, using the EPA as a data source can give a nationwide picture of sentencing practices. It can be argued, however, that each state has their own environmental laws and therefore the conclusions of this research might not

accurately depict comprehensive sentencing trends in the United States. However, the EPA has consolidated the information for cases nationwide into a usable database and thus serves as the best data to use to answer the questions of this research.

The final limitation of this research is that only eleven years of data were used in this study. The EPA's database starts in 1983; therefore it would be possible to examine these four hypotheses for a span of now three decades. This study only took a small segment of the available information. Recently, the management, data collection, and administration of the EPA online database are improving; however, the early years of data have some of the largest gaps in information. This dataset will never contain all of the information needed to truly find what factors influence sentencing patterns in environmental crimes.

Future Studies

The current study is a preliminary descriptive and exploratory examination of environmental crime cases criminally prosecuted by the EPA and the sentences imposed on corporate or individual offenders. Future research requires improved data with more specific details on victims in EPA cases. Such improved case documentation would provide researchers with more comprehensive case histories improving their ability to compare sentences to the actual amount of victim loss. Researching the role victimization plays in environmental crimes could greatly increase the understanding of the importance placed on victim type when sentencing green crimes.

Before green criminology will fully understand the complexities of criminal environmental sentencing, additional research is necessary. The EPA is slowly

increasing the standard amount of information it includes and records in the criminal case summaries. Such improvements in data collection and management by the EPA would allow future research to conduct more comprehensive analyses of sentencing patterns across longer time periods. For example, a larger project might collect similar data for each state to determine if state environmental sentencing mirrors federal sentencing. In the current study, there were several cases where state environmental laws were used in the conviction. Researching state environmental cases could better identify if federal or state law played a major role in the administrative response by the EPA to environmental crimes.

Finally, an interdisciplinary approach would enhance our knowledge on the impact of green crimes on the environment and their relationship to what sentences are imposed. Teams of researchers could study the environment after a green crime is committed to determine an estimated amount of lasting damage, and then apply these estimates to the sentences received by corporate or individual offenders to improve research on sentencing. For example, if an environmental crime causes \$100 million dollars in damage and only results in a \$10 million fine, then the idea of proportional sentencing might be of considerable importance as a variable conditional element on sentencing. Future studies could also analyze the EPA sentencing data for every year present in the database using advanced analytical tools, such as regression. Future research might focus on what factors effect whether or not a corporate or individual offender receives a fine, probation, and/or incarceration. Studies of this type lead to another interesting topic that has not been studied here -- how the different types of sentences are used in tandem when punishing an environmental offender. In the current study, very few cases had an

offender who received only one type of sentence. A majority of cases used fines paired with probation or incarceration. Future research might examine if receiving multiple sentence types increased the probability of receiving a less harsh or more punitive sentence within each type of victim, human or animal.

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