Court in the Act

A Quantitative Analysis of Section 4 Endangered Species Act Cases

By

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Abstract

This paper examines the factors that influence the success of federal court cases about the Endangered Species Act (ESA). I use logistic regression and empirical analysis to test several models of judicial decision-making on section 4 ESA cases.

In this paper, I aggregate literature on judicial decision-making, wilderness as a concept, and the implementation of the ESA and discuss the effects of these separate fields on each other. Next, I evaluate the characteristics of 358 district court cases by building a model using backwards selection from 27 original variables. The variables that are significantly influential in whether an animal is ultimately protected are: what the judge's ideology is, whether the plaintiff is a group, and whether the animal in question is charismatic.

I find that the ESA is both a victim to and the epitome of the broader disagreement among Americans about how we define and treat wilderness. The ESA is incoherent and provides little guidance to its implementing agencies, forcing judges to use their own personal conceptions of wilderness in ESA cases. A national exploration of our relationship with wilderness is necessary to end the ESA's erratic implementation and confront the effects of judicial policymaking through adversarial legalism on our democratic principles.

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Introduction

By unequivocally obliging the federal government to protect wildlife, the Endangered Species Act of 1973 (ESA) is one of the boldest expressions of environmental ethics and most powerful regulatory tools in the United States. Still, it has never become clear exactly what those ethics are and how those tools should be used. The ESA has evolved into a microcosm of the larger American disagreement over what nature is and what our relationship with it should be. This incoherent, self-contradictory view of nature has turned the ESA into a powerful yet inconsistently implemented policy with which neither liberals nor conservatives are satisfied. It has simultaneously sowed discord and failed to properly protect species.

The ESA, interpreted literally, enacts wildlife conservation as the government's first priority and imagines nature as a museum that completely lacks human influence. The original 1973 version of the ESA granted remarkably broad powers to the federal agencies responsible for administering its provisions. Congress's stated purpose of the ESA is to protect and recover vulnerable species and the ecosystems they inhabit using "all methods and procedures which are necessary" until they no longer need protection (Endangered Species Act, 1973). In a landmark case, the ESA was described by the Supreme Court as "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation" (*Tennessee Valley Authority v. Hill*, 1978).

Endangered species occupy a fraught space within Americans' minds. Because the protection of endangered species touches on our collective nerve about how big a role our government should play in our lives, animals are uniquely suited to serve as expressions of someone's liberalism or conservatism. In addition to this, endangered species also encapsulate

the diverging perspectives on the definitions of nature and wilderness that undergird so much of American discourse about environmental policy. While views of what wilderness is and what it should be relate to political ideology, they do not perfectly align. In fact, differing conceptions of wilderness may actually cause the infighting over endangered species policy among people who are on the same side of the aisle.

Since its passage, the ESA has undergone a disjointed journey marked by repeated attempts by the branches of government to correct the ESA's shortcomings. It has swung widely between competing views of nature, inflaming a new coalition each time. Both environmental and industry interests have taken issue with how the ESA is enforced.

However, stakeholders have often neglected a crucial aspect of how environmental policy is advanced or defeated: the courts. As evidenced by the ESA's own history, litigation is a powerful yet oft-overlooked way to challenge administrative decisions and spur legislative action. The judicial branch speaks last on the questions of legislative intent and appropriate implementation that dominate debates about the ESA. Unlike the other branches, the courts are not overtly susceptible to political pressures and organizational difficulties. Judges' intended purpose as apolitical adjudicators of the law, combined with their lifelong terms, ostensibly frees them to make decisions without a politician's fear of losing votes or donors. However, as recent entries into the judicial decision-making literature have shown us, the courts are not immune from the ills that diminish the other branches' capability of making strong, coherent policy. Considerations other than case facts and legal precedents are often predictive of how a court challenge will be decided, allowing litigators to plan their strategies to achieve a higher likelihood of success.

This paper is concerned with what factors are most influential in whether an environmental advocate succeeds or fails in federal cases related to the Endangered Species Act. More specifically, this paper will quantitatively analyze federal cases involving section 4 of the ESA to determine which factors are most influential in the challenge's likelihood of success and how. We cannot truly know what judges include in their decision-making process or how they weigh different considerations. However, by observing judges' actions, we can infer the basis upon which these decisions are made.

The literature says little about judges' decision-making tendencies on environmental cases. This silence is despite the idiosyncratic nature of environmental policy and the increasing prominence of environmental issues in the media and in politics. News articles about the alarming rate of disappearance of wildlife are abundant, and environmental protection is beginning to rank highly among young progressives as a factor in whether they will support a political candidate. The Trump administration has drawn both ire and praise for weakening the ESA's provisions on an unprecedented scale. More recently, the ESA has emerged as a potential means of advancing far more drastic environmental protections, like climate change mitigation and water protection, and even broader policies, like conservation of indigenous land. In response, business interests are wary of the ESA's potential to hinder or halt development projects and have worked to constrain its ability to protect wildlife. These debates, so frequently framed around ideology and who is pro-business, may actually speak to our relationship with nature.

By analyzing how the courts treat the ESA, we can evaluate the failures in our institutions that have led to such plentiful and acrimonious legal disputes. This paper, by means of a

quantitative analysis of ESA cases, aims to explore incoherent views of nature as a fundamental reason for the ESA's inconsistent implementation.

Background

In this section, I describe the events that led to the passage of the Endangered Species Act (ESA), the ESA's original content, and its subsequent revisions.

Legislative History

Especially when viewed today, the ESA passed remarkably quickly and easily. The ESA was part of a wave of environmental protections in the 1970s, like the Clean Air Act and the Clean Water Act, that enjoyed broad bipartisan support.

The issue of wildlife protection gained ground in the United States during the early 20th century due to the near or total extinction of popular species like the bison, bald eagle, and passenger pigeon (Petersen, 1999). Post-World War II Americans had more time to engage in leisure and appreciate nature. This, bolstered by the publication of Rachel Carson's watershed book, *Silent Spring*, led to a massive environmental movement (Petersen, 1999). Because endangered species preservation was perceived by many to be the quintessential environmental issue, it was lifted into prominence. Contemporary views of nature dreamed of an idyllic world where humans were stewards of a pristine wilderness.

Although Congress attempted several times to pass wildlife protection legislation as a response to this push for change, these laws proved largely ineffective. The first Earth Day in 1970 sparked demands for more forceful environmental policies and propelled endangered species protection even further into the political spotlight. As a result, a myriad of politicians, including President Richard Nixon, called for better wildlife protection policy. In July 1973, the ESA was introduced in the United States Senate. After enthusiastic bipartisan support both within and outside the government, President Nixon signed the remarkably uncontroversial ESA

into law in December 1973 (Petersen, 1999). At the time, the ESA was viewed as a largely symbolic law that simply represented the United States's newfound commitment to protecting wilderness.

Content

Under the ESA, the ideal progression of the status of a vulnerable species would begin with an objective assessment of the risks posed to the species, proceed to list the species, continue to implement an extinction prevention plan, and end by successfully recovering the species to a point where extinction is no longer a concern. The bulk of the ESA's authority to achieve these goals exists within 3 sections: section 4, section 7, and section 9 (Sugg, 1933). The Secretary of the Interior is responsible for the administration of the ESA, with the National Oceanic and Atmospheric Administration (NOAA) overseeing marine species and the Fish and Wildlife Service (FWS) managing freshwater fish and all other wildlife.

Section 4 is the relevant section of the ESA for the purposes of this study. Section 4 of the original version of the ESA outlined the process of listing species, which was, and continues to be, widely considered to be the cornerstone of the ESA. This section contained the provisions for deciding which species would receive protection under the ESA, which would ultimately trigger the rest of the ESA. In order to determine whether a species would be listed or not, the Secretary of the Interior was instructed to examine the best available scientific and commercial data and consult with stakeholders like private landowners and environmental activists (Endangered Species Act, 1973). The species would then be listed as threatened, which indicated that it was likely to become an endangered species within the foreseeable future, or endangered, which meant that it was already at risk of extinction. From there, endangered species would

receive the full force of protection that was outlined in the rest of the ESA. Threatened species received far more flexible protections, the degree of which was up to the FWS or the NOAA. Because listing a species created a domino effect of regulatory actions, listing was quickly recognized as a key source of the ESA's power. Therefore, both supporters and opponents of the ESA have historically focused their efforts on section 4 (Petersen, 1999).

Section 7 prevents any project associated with a federal agency from harming endangered species, and section 9 prevents "taking" endangered species, where taking is broadly defined as any action that harms an endangered species. The most important section outside of sections 4, 7, and 9 for this study is section 12's citizen suit provision, which allows any person to file a suit alleging a violation of the ESA. Virtually all ESA cases are brought by citizens—this provision has become a powerful means for environmentalists to fight on behalf of endangered species through the courts and, in some cases, dramatically strengthen the ESA.

As originally written, the ESA encapsulated the mid-20th century perspective of nature as a museum that humans venerated and did not influence. This approach instills a sense of reverence in American citizens, one that encourages them to think about wilderness in terms of what is ethical. As a result, the "nature as a museum" approach is most associated with dyed-in-the-wool preservationists. Still, the concept of "nature as a museum" is also an overly simplistic view of wilderness to the point of being unattainable. It views nature as inert and without agency and can place the burden of all of the symbolic power of nature onto a single endangered species. The "nature as a museum" idea ran through each section of the ESA, causing the Supreme Court to declare that "the plain intent of Congress… was to halt and reverse

the trend toward species extinction, whatever the cost" (*Tennessee Valley Authority v. Hill*, 1978) This plagued the original ESA and caused it to be perceived as a largely symbolic law.

Subsequent Revisions

Much of the ESA's content and strength are derived from the dramatic revisions that have been made through court rulings, legislative amendments, and changes in administrative regulations. Thus, a review of the modern-day ESA's content and strength necessarily depends largely on the changes that have been made to it. This section will examine the most significant changes that were made to the ESA from its passage to the present.

Of course, despite the Court's ruling that species extinction must be halted "whatever the cost," species extinction can never truly be halted. Species extinctions occur frequently and without us noticing, and are often part of the regular course of nature. Due in large part to rapid globalization and the change in climate that followed, it became clear that nature was not, in fact, a museum. Wilderness was dynamic and subject to human decisions, regardless of which swaths of land were partitioned off. This led to the conception of humans as fully integrated parts of wilderness. A potential next step from this idea is that humans are a kind of apex predator whose dominance of wilderness is both natural and well-deserved. This idea is most associated with hunters and opponents of intentional animal protection, but it also echoes through environmentalist rally cries about being "one with the earth" and "caring for our home."

The first major revision to the ESA occurred in the Supreme Court's ruling on *Tennessee Valley Authority (TVA) v. Hill*. In 1978, the Supreme Court voted 6-3 to halt construction of the TVA's Tellico Dam because of its projected negative impact on the endangered snail darter, a small species of fish. The Court decided that, because the TVA is a federally-owned corporation,

the project violated section 7 of the ESA's requirement of interagency cooperation. The Court's majority opinion interpreted section 7 as an absolute bar against any action by a federal agency that might jeopardize an endangered or threatened species, providing no room for exceptions and writing that "one would be hard pressed to find a statutory provision whose terms were any plainer than those in 7" (*Tennessee Valley Authority v. Hill*, 1978). This was the first indication of the intense controversy that this seemingly straightforward law had the potential to generate and endowed the ESA with the power to majorly disrupt development in favor of any endangered species, including those that, like the snail darter, were perceived as unpopular and insignificant.

After the endangered snail darter brought down the Tellico Dam project in 1978, Congress amended the ESA to increase the amount of discretion that FWS and NOAA employees had over the implementation of the ESA with the expectation that they would no longer allow insignificant species to derail major economic projects. The 1978 amendments introduced discretion into protection from takings in the form of the Endangered Species Committee, popularly referred to as the "God Squad," which was created to exempt certain federal projects from the ESA if the benefits of the project clearly outweigh the benefits of species conservation (Endangered Species Act, 1978). In the end, the 1978 amendments introduced so much discretion with so few increases in resources into the ESA that wildlife protection ground to a near-complete halt.

Congress amended the ESA again in 1982 in an effort to reinvigorate it. These amendments created a shorter listing procedure with less convoluted guidelines in order to simplify and expedite the process. There was far less room for political discretion than in the

1978 amendments, where the ambiguous listing rules forced employees to use their subjective judgment more often than not. However, although the 1982 amendments took away opportunities for discretion in listings, they introduced substantial discretion into the protection from takings by creating a loophole for "incidental takings." Incidental takings were allowed if the taking was not the explicit purpose of an activity and did not "appreciably reduce" the species' ability to recover. FWS and NOAA have substantial discretion in issuing these permits and are effectively allowed to authorize any otherwise illegal action (Thompson Jr., 1997).

The ESA Amendments of 1988 were the last substantial legislative changes that were made to the ESA, but they represented a clear departure from the far-reaching changes implemented in 1978 and 1982. The difficulty that Congress had in making substantive changes to the ESA after 1982 was reflective of the larger legislative gridlock that emerged in the late 20th century. The 1988 amendments also instructed the Secretary to prioritize the species that would benefit the most from recovery plans "without regard to taxonomic classification" in an attempt to prevent the overlooking of smaller, unpopular animals in favor of animals that were more charismatic but not as vulnerable (Endangered Species Act, 1988). Finally, the 1988 amendments to section 4 instituted new structures for public input on and oversight of actions carried out by the FWS and NOAA under the ESA. This was also consistent with the gridlock that had begun to paralyze Congress. Rather than creating new laws or even substantially editing old ones, it began to focus on oversight of the executive branch.

After the 1988 amendments, modifications to the ESA primarily occurred through the executive branch, with Democratic administrations tending to expand protections of endangered species while Republican administrations rolled them back. However, no change in

administrative regulation has been as substantive as any of the legislative amendments or court cases that have already been discussed.

Literature Review

Judicial Decision-Making

The normative view of judicial decision-making, or the "legal model," views judges as insulated from political considerations (Segal & Spaeth, 2002). The legal model relies heavily on *stare decisis*, the principle that judges should rule according to previously established legal rules, even if they disagree with them. However, as works like Segal & Spaeth's 1996 study show, judges may not actually adhere to precedent as much as the legal model would suggest (Segal & Spaeth, 1996). This also applies to lower courts, as shown by Cross & Tiller's 1998 study of the courts of appeals (Cross & Tiller, 1998). This creates room for an alternative model of judicial decision-making that is based, at least in part, on political considerations.

Political Models of Judicial Decision-Making

The main tenet of political decision-making models is that judges seek to make decisions that will result in the outcomes that they prefer—put simply, that judges act as politicians. The main examples of such a model are the attitudinal model, which posits that judges make decisions based on their own policy preferences, and the extralegal model, which places special consideration on external factors like public opinion and the preferences of the other branches of government.

The attitudinal model explains judges' decisions in terms of what they want to happen, not what existing case law says should happen. The ideology of a judge plays a large role in the judicial nomination and confirmation process, indicating that presidents and senators believe that a judge's ideology influences how she will rule on the bench (Stone, 2010). The literature shows that this belief is well-founded. Segal & Cover's 1989 study shows that one can successfully

predict judges' voting behavior with measures of their ideology (Segal & Cover, 1989). This is not to say that judges have no regard for precedent. Rather, an explanation for the strong correlation between a judge's decisions and her ideology can be that there is often reasonable legal doctrine on both sides of an issue. Judges can choose "which" precedent to follow in accordance with their own policy preferences (Segal & Cover, 1989).

The extralegal model considers the influence on factors outside the judge and the law on how judges make decisions. The primary factor of interest in the extralegal model is public opinion. While the normative view is that the judiciary is insulated from the desires of the public, and even that it champions minority rights, Caldeira & Gibson show that public opinion constrains the courts rather than courts shaping public opinion (Caldeira & Gibson, 1992). This may be because the judiciary in reality has no power to implement its rulings—it must rely on its institutional legitimacy for its decisions to be enforced, which in turn comes from its amount of public support. Courts cannot repeatedly make decisions that the public sees as political or incorrect without risking its legitimacy. As a result, judges must act strategically.

Similarly, courts may also take into account the preferences of other branches of government in an attempt to preserve the perceived legitimacy of the judiciary (Rosenberg, 1992). Judges' inability to enforce their rulings forces them to rely on the executive branch. This raises the possibility that judges avoid certain decisions out of fear that the president will ignore their rulings and that the judicial branch's legitimacy will be damaged as a result (Howell, 2003).

Finally, the extralegal model suggests that the parties in the suit and who is representing them are relevant factors to a judge's decision. Sheehan, Mishler, & Songer show that the type of

plaintiff or defendant is influential in the outcome of a case, as is the prestige of the lawyers representing each party (Sheehan, Mishler, & Songer, 1992).

Judges' Decisions in Environmental Cases

There is limited research about judges' decisions in environmental cases, and none about the Endangered Species Act specifically.

Malmsheimer & Floyd's 2004 study analyzes United States courts of appeals cases in which a federal natural resource agency was the defendant by comparing the legal model, the attitudinal model, the extralegal model, and an integrated model combining aspects of all three (Malmsheimer & Floyd, 2004). In cases where federal agencies are included, the courts should generally defer to the agencies' decisions. This is also known as the Chevron doctrine. However, Malmsheimer & Floyd find that ideology and litigant identity are significant factors in determining how a judge will rule on a decision. They conclude that "factors other than the case's facts and legal precedent may have caused a judge not to agree with the agency's management decision… these factors may [also] have caused some judges to uphold an agency management decision when it violated a statute." Their study provides a strong challenge to the actual prevalence of the Chevron doctrine.

Conceptions of Nature and Conservation

The question of how Americans define and understand wilderness has been the subject of lively discussion in environmental studies literature, but it has not yet made its way into policy circles. This paper seeks to explicitly link differing conceptions of nature to the inadequate implementation of the ESA.

Cronon's 1995 essay critically examined the idea of wilderness, arguing that this fundamental tenet of modern environmentalism is actually a construct that Americans use to manufacture a cultural identity (Cronon, 1995). He argues that the traditional view of wilderness from which so many environmentalists derive their values is, itself, a paradox. Romanticizing wilderness as a symbol of pure good, somewhere with no place for human presence other than basking in its beauty, prevents ethical and sustainable roles for humans from existing. This leads to a myriad of consequences completely at odds with what most people who subscribe to this view believe, from the justification of the removal of Native Americans in order to preserve an uninhabited wilderness to the belief that there is nothing we can do to restore nature from its fall from grace. Well-intentioned reverence can lead to what Cronon refers to as the domestication of the sublime, where we appreciate nature only for its pleasant, un-abrasive beauty and non-human beings only for their intelligence and sentience. In the process, we set an impossible standard for what counts as nature and unduly place all the power and symbolism and sacredness of wilderness into a single organism.

Cronon criticizes the American tendency to conceptualize things according to a "bipolar moral scale" that forces us to assign value based on narrow, unrealistic expectations of what is natural and unnatural or what is human and nonhuman. He instead urges us to chart a middle path that leads to a healthier relationship with nature.

There are four main conservation approaches, as described by Kalamandeen & Gillson: (1) the Yellowstone model, (2) the game reserve model and wise use, (3) wildlife and biodiversity conservation, and (4) ecosystem management (Kalamandeen & Gillson, 2006). Each

approach depends to an extent on ideas of wilderness and pristineness, but each also introduces alternative values on which to base conservation.

The first conception of conservation is the Yellowstone model (Kalamandeen & Gillson, 2006). Referencing the first National Park, this conception emphasizes totally preserving nature based on its aesthetic and spiritual value and assumes that humans invariably harm nature. The Yellowstone model prevailed during the early days of conservation in the late 19th century and through the 20th century. One of the main consequences of this model and its emphasis on wilderness without people is its erasure of the Native Americans who had lived in "wilderness" for thousands of years. It was used to justify removing Native Americans from their ancestral homelands in order to achieve a pristine, human-less environment. Although the Yellowstone approach fantasizes about a totally uninhabited wilderness, its emphasis on the beauty of the landscape necessarily introduces an economic component. Beauty is preserved so that it can be seen—indeed, the protection of landscapes like Yellowstone may not have been possible without the power of the tourism industry and the American public's increasing desire to visit and enjoy pristine spaces.

The next conception of conservation is the game reserve model, which advocates for the wise, sustainable use of natural resources (Kalamandeen & Gillson, 2006). This idea developed in parallel with the Yellowstone model and has competed with it constantly for acceptance from policymakers. The game reserve model originated with forest management and the idea that trees should be selectively harvested, but it quickly expanded to include wildlife. The proponents of the game reserve model argued that completely preventing the use of natural resources was as wasteful as destroying them entirely and looked disdainfully upon sentimental arguments for

preserving nature. Despite obvious differences in opinion on how much humans threatened nature, the game reserve model and the Yellowstone model ultimately shared similar goals. Both sought to minimize human exploitation of resources, if not by forbidding it then by strictly controlling it. Today, the wise-use model has been co-opted by anti-conservation advocates to support the exploitation of natural resources for the benefit of the timber and energy industries.

The third conception of wilderness is the idea of wildlife and biodiversity conservation, which focuses on protecting animals both for their own sakes and for their potential scientific and ecological value (Kalamandeen & Gillson, 2006). Although this conception was initially connected to humane concerns over the wellbeing of animals, it shifted in the late 20th century to reflect concerns over extinction rates and the feeling of obligation to mitigate human-driven extinctions. Protecting biodiversity does not explicitly require that landscapes are kept pristine, but they are regularly conflated. Conservationists often assume that pristine ecosystems best support biodiversity and, as a result, advocate for minimizing human contact with wilderness. Like the previous two approaches, humans are seen as a threat.

The final conception of conservation is ecosystem management. While the first three approaches all view humans as essentially separate from nature and thus have similar outcomes, the ecosystem management conception places humans within nature. The ecosystem management acknowledges that even protected and isolated ecosystems are influenced by humans and that some groups of humans, generally those indigenous to the land, have successfully managed these areas for a very long time. Instead of seeking to reach a human-free equilibrium for wilderness and wildlife (i.e. by setting fixed goals for vegetation area or population numbers), the ecosystem management approach instead accepts that nature is

constantly in flux. Its goal is to protect ecosystems' structure and maintain their ability to adapt to new circumstances. A classic example of this is fire management, which has taken principles from Native Americans' management of forests. Managers intentionally set fires, adjusting the area and location based on rainfall and the effects of unintentional fires, reintegrating human and environmental agents.

Endangered Species Act

Although there is a wealth of research about the passage and implementation of the ESA, few papers discuss the judiciary beyond the splashiest cases that have been considered by the Supreme Court. Additionally, studies of the ESA often focus on surface-level problems rather than the deeper ones that undergird each of its failures.

The agencies responsible for implementing the ESA have considerable discretion. Because the process for listing endangered and threatened species has so many steps, there are many opportunities for an employee to block a species from being listed and prevent it from receiving protection. Although there are guidelines for how listing should be carried out, they are vague enough to leave substantial room for judgment calls by the employees evaluating the species. Even when a species is listed, the mechanisms that then determine how it will be protected and recovered are also vulnerable to the discretion of FWS and NOAA bureaucrats. Employees decide whether a species will receive a designated critical habitat and what areas it will comprise, what actions constitute a taking, and what the goals and steps of recovery plans will be.

However, FWS and NOAA employees are constrained by a structural lack of resources (Lipsky, 2010). First, they lack the information that is necessary to successfully implement the

ESA's provisions. The ESA instructs FWS and NOAA to make listing decisions based on "the best scientific and commercial data available" but does not offer any insight as to what constitutes the best data or where to find it. Among the information to which FWS and NOAA have access, there is a large deficiency of biological and environmental data about species populations and potential threats to them (Easter-Pilcher, 1996). Moreover, the amount of available data varies widely between species, making it impossible to determine which species are more vulnerable than others. This forces employees to make listing decisions based on incomplete information. This lack of adequate information also impedes the implementation of policies other than listing. Without enough scientific data, employees cannot make accurate judgments on what geographical areas should be designated as critical habitats or on the best practices for recovery plans.

FWS and NOAA employees are also limited by time and funding. They are required to process so many candidates for listing, critical habitats, protection from takings, and recovery plans that it is impossible to give each species individual attention without lagging massively behind schedule. As a result, agency employees are often forced to give species mere cursory glances before making major decisions on how the ESA should apply to them (Doremus, 1997). This forces them to neglect the unique characteristics of individual cases, the consideration of which may prevent important aspects from slipping through the cracks. FWS and NOAA have been plagued by chronically insufficient funding that severely restricts their ability to improve how they implement the ESA. If the agencies had larger budgets, it is possible that they could fund research to improve access to information or hire more employees in order to better process

their caseload. Thus, resource constraints, along with employee discretion, have made for a poor implementation of the ESA.

Although several attempts at either reducing or expanding employee discretion and access to resources have been made, FWS and NOAA continue to have substantial discretion and are still limited by resource constraints. Congress's repeated attempts at changing the levels of discretion and constraints have done little to improve the challenges faced by the agencies charged with implementing the ESA. Although citizen groups can have a considerable impact on environmental lawmaking through litigation, the role of the courts in the ESA has been understudied (Wilde, 2014).

Summary

My study fits into the literature in the following ways: it will expand on the existing judicial decision-making literature to include more detailed information about courts' decisions in cases involving natural resource laws and agencies, how disagreements about the idea of wilderness affect the implementation of environmental policies, and the judiciary's role in implementing the ESA.

Methods

This section will describe how the variables in this study were selected, measured, and analyzed.

Scope

This study evaluates all United States District Court opinions involving section 4 of the ESA that were brought against a United States federal agency. The opinions were located by conducting a "Shepardization" of all federal district court opinions between January 1, 1973 and October 23, 2019 that cite 16 U.S.C. § 1533 (section 4). A Shepardization is a search for every decision which cites a particular case or statute.

I look only at district court decisions because these comprise the vast majority of the decisions made on endangered species. Moreover, United States appellate courts review the decisions of the district courts and do not hear direct evidence or determine the facts of the case. Rather, appellate courts are restricted to deciding whether the lower court made the correct legal determinations. Appellate court cases thus involve an additional layer of complexity that would muddle the analysis and introduce a danger of double-counting cases. By excluding district court cases with subsequent negative treatment by appellate courts, my analysis has the benefits of including appellate court cases without the drawbacks.

I excluded decisions with a red Shepard's signal, which indicates that a higher court has treated the decision negatively (e.g. overruling or reversing the decision). This ensures that all of the opinions in my dataset are still good law. I also excluded opinions decided by magistrate judges from my analysis. This is because magistrate judges are appointed by district court judges rather than by the president. As a result, the ideology of the appointing president is a less

accurate proxy for ideology than it is for a district court judge. I also omitted opinions that only addressed plants rather than animals. This was because plant protection is far less controversial than animal protection and does not have the same ability to halt commercial activity. Finally, I excluded decisions made on procedural issues, like rulings on motions to compel, motions to intervene, and issues of jurisdiction. I excluded these because the focus of this study is on how factors influence judges' substantive interpretation of the ESA. I did, however, include decisions about standing in my analysis. This is because proving standing, or demonstrating that one has been harmed enough by an action to bring a suit, is a foundational part of environmental litigation and one that depends heavily on the individual judge.

After selecting the opinions that would go into my dataset, I divided them into whether the plaintiff was pro-environment (alleging that the federal agency has not gone far enough in protecting endangered species) or pro-commodity (alleging that the federal agency has gone too far in protecting endangered species).

Variables

27 independent variables were chosen to answer the question of what factors influence whether an opinion about the ESA succeeds or fails. The variables used in the regression analysis are summarized in Appendix A.

The first category of variables is information about the case. This includes the court in which the suit was brought and the circuit where the court belongs. This category also includes the section(s) that was/were cited in the decision. The opinion is coded as a "1" for if the decision cited section 4 and a "0" if the decision did not. This was repeated with sections 4, 7, and 9.

The next category is the version of the ESA that was in place when the opinion was decided. The ESA was passed in 1973 and majorly amended in 1978, 1982, and 1988. The opinion is coded as a "1" for which range it fell into (e.g. 1973-1978) and as a "0" for all other ranges.

Next, external factors are considered. The first of these is the president at the time the decision was made. The second is which party controlled Congress at the time of the decision. The opinion is coded as a "1" for "Democratic Congress" and a "0" for all other options if the opinion was decided while the Democratic Party controlled both the House of Representatives and the Senate. It is coded as a "1" for "Split Congress" and a "0" for all other options if the opinion was decided while each party controlled one of the chambers of Congress, and it is coded as a "1" for Republican Congress" and a "0" for all other options if the opinion was decided while the Republican Party controlled both chambers of Congress.

The next category is information about the judge who decided the opinion. The first variable in this category is the judge's ideology. This is measured through the proxy of which party the president who appointed the judge belonged to. I acknowledge that this is a flawedmeasurement and that other ways of determining ideology, such as analyzing newspaper articles about judicial nominees, exist. However, because my analysis uses district court judges as opposed to the more prominent Supreme Court justices or appeals court judges, there is less information available online about the judges in my analysis. Moreover, using the ideology of the appointing president as a proxy for the ideology of the judge is a well-established practice both in the political science literature and the judicial decision-making literature (Cross & Tiller, 1998). So, while imperfect, this method is sufficient for the purposes of this study. The judge is

coded as a "1" if appointed by a Democratic president and a "0" if appointed by a Republican president. The second variable is the judge's gender. If the judge is female, she is coded as a "1." If he is male, he is coded as a "0."

Information about the plaintiff is another variable included in my analysis. In addition to the initial separation of the opinions depending on whether the plaintiff is pro-environment or pro-commodity, the opinion is coded according to whether the plaintiff is an individual or a group. It is coded as a "1" if the plaintiff is a group and a "0" if the plaintiff is an individual.

The final category of independent variables is information about the animal in question. The first of these is the size of the animal. The opinion is coded as a "0" if the animal is small, (average adult weight is less than 10 pounds), "1" if the animal is medium (between 10 and 50 pounds), and "2" if the animal is large (greater than 50 pounds). If there are multiple animals involved in the opinion, it is coded according to the largest animal. The next variable is which type of species the animal in question belongs to: mammal, bird, reptile or amphibian, fish, insect or arachnid, or other (e.g. coral). The opinion is coded as a "1" for which species it and a "0" for all other options. If there are animals of different types of species involved in the opinion, the opinion is coded as a "1" for each species involved. The next variable is the endangered status of the animal in question. The opinion is coded as a "0" if the animal is unlisted (i.e. the plaintiff is suing to get the animal listed), "1" if the animal is threatened, "2" if the animal is endangered, and "3" if the animal is an experimental species. Finally, the charisma of the animal is measured. An animal is coded as "1" (charismatic) if a Google search for the name of the animal has more than 20 million results and "0" (uncharismatic) otherwise. Because other studies of the ESA have used only subjective criteria for whether an animal is charismatic, I devised my

own objective criteria to determine charisma. Google search results are a common way to assess the popularity of a term or topic—the more popular an animal is, the more search results it has. I reached the threshold of 20 million results by searching for 1-2 animals that are undoubtedly charismatic (e.g. the bald eagle) and 1-2 animals that are undoubtedly uncharismatic (e.g. the giant Palouse earthworm) and finding a logical point of division.

The dependent variable for each opinion is whether the judge deferred to the agency or not. The opinion is coded as a "1" if the judge deferred to the agency. For an environmental plaintiff, this is a pro-commodity outcome. For a pro-commodity plaintiff, this is a pro-environment outcome. The opinion is coded as a "0" if the judge did not defer to the agency (a finding that any part of the agency response was inadequate or incorrect counted as non-deference). For an environmental plaintiff, this is a pro-environment outcome. For a pro-commodity plaintiff, this is a pro-commodity outcome.

Analysis

There are two methods of analysis in this study: descriptive and analytic. Descriptive analysis consists of summary statistics like counts, percentages, and averages and is used to develop an overall cross-section of the landscape of ESA decisions.

The second method of analysis is a logistic regression done in R after a random sample of 25% of the opinions is removed. I will use backward selection for ease of computation. Only statistically significant factors will be included in the model. Here, statistical significance indicates that a variable is a good predictor of the success of a court challenge.

Finally, I will test my model on the 25% of opinions that were removed to see how well my model predicts decisions that were not used to train it.

Benefits

Logistic regression is ideal for outcomes that are binary, like whether a judge rules in favor of an agency. One can use a logistic model to determine the probability of an outcome from a list of independent variables. This allows us to objectively determine whether a factor significantly influences the outcome. My large sample size also enables me to make generalizations about ESA cases.

Turning 25% of the opinions into a test set allows us to test how effective the model is at actually predicting the outcome of a case that it has never "seen" before.

Limitations

This approach is limited by several factors. First, this study does not evaluate decisions made by United States Courts of Appeals or the United States Supreme Court. These are often the most high-profile cases with the most legal ambiguity. Focusing only on district court cases, where the legal standard is often clear and easily applicable, may obscure the true significance of non-legal factors in judges' decision-making.

This study is also victim to the flaws inherent in numerically indexing non-mathematical concepts. The most obvious is turning continuous variables like size or charisma into categorical, often binary, variables based on essentially arbitrary criteria. Categorization is necessary for analysis but erodes the complexity that exists in each case.

Converting judges' rulings to a binary scale also removes any nuance that might exist in an opinion. Several of the pro-agency rulings expressed disappointment with the agency's response or sympathy with the plaintiffs' causes, but these dimensions are eliminated when only evaluating rulings on motions.

Finally, the one-at-a-time nature of backwards selection makes it possible to miss the "optimal" combination of variables.

Findings

Here, I will describe the findings of my study. I will start first with descriptive statistics about the ideological and spatial distribution of the cases, the parties involved, and the animals involved. Then, I will discuss the model that was chosen through backwards selection to predict the outcomes of court cases. Of my findings, the ones that are of particular interest are the influence of the judge's ideology, the increased contentiousness of the Endangered Species Act (ESA) over time, and the lack of importance of the animal's charisma.

Several of my findings are surprising. Of these, the ones with unique explanations will be addressed separately. However, the results of my study may have been broadly affected by a few characteristics of my methods. The first is my narrow definition of an agency deferral: if a judge found that even one aspect of the defendant agency's response was inadequate, I coded the case to be a rejection of the agency decision. This is an extremely restrictive definition that obscures the possibility that in some cases the agency won the most impactful disputes despite the plaintiff winning a single, relatively insignificant dispute. The second is that I only examined district court cases, where the course of action is the most straightforward. If the law is clear, as it often is in district court cases, there is less room for the factors I examined to influence the ruling.

Finally, each case is not independent of the others, a fundamental assumption of regression analysis. Many of the coded cases were different disputes in the same lawsuit heard by the same judge. If one side of the lawsuit was consistently and obviously correct, this skews the results. Even more broadly, a single judge could hear a dozen or more cases. Each judge has his or her own individual biases—for example, in my analysis, I discovered a handful of unusually pro-environment Republican judges or pro-commodity Democratic judges. In

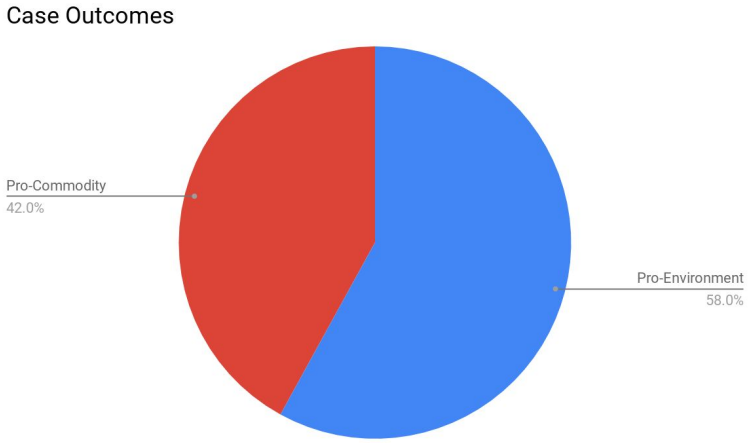
particular, Republicans appointed in the Reagan or Bush Sr. era were relatively pro-environment. Clinton, on the other hand, appointed several judges that had previously been appointed to federal positions by Republican presidents. These Clinton-appointed judges were often more pro-commodity but were coded as Democrats in my analysis. A single unusually pro-environment Republican judge or pro-commodity Clinton judge that heard many cases, therefore, may skew the findings and fail to reflect today's conditions.

Despite the limitations that these decisions placed on my findings, they were necessary for a robust quantitative analysis. In fact, my narrow definition of an agency deferral and use of district court rulings give greater credence to my findings that non-legal factors have significant effects on the outcomes of a case.

Descriptive Analysis

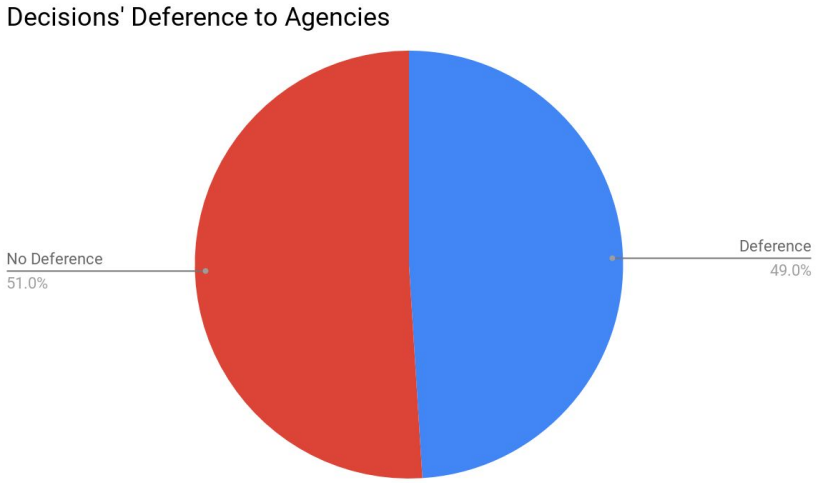
General

Of the 358 cases analyzed, 58% of the cases resulted in a pro-environment ruling. This was a decision where the judge ruled that the agency's response was inadequate in a case with a pro-environment plaintiff or where the judge ruled that the agency's response was adequate in a case with a pro-commodity plaintiff. In other words, the animal received greater protections. Because I expected about half of the cases to result in a



pro-environment ruling, this was somewhat surprising. However, this finding may be an inflated number attributable to my definition of agency deference, especially because the majority of cases were brought by pro-environment plaintiffs. If even one aspect of the agency's response was deemed inadequate, the ruling was coded as being pro-environment.

In 49% of cases, the courts deferred to the agencies' implementation of the ESA. That the courts ruled that the agency response was adequate in less than half of the cases studied seemingly refutes the actual prevalence of the *Chevron* doctrine, which compels the courts to defer to agency decisions. This finding is consistent with literature that suggests that the *Chevron* doctrine has actually had little effect on judges' jurisprudence, although it could also be due to my narrow definition of deference to the agency. A judge may have deferred to the agency on the most important aspects of the case or even most of them, but the case was still coded as a non-deferral if the judge ruled against the agency on even one aspect.

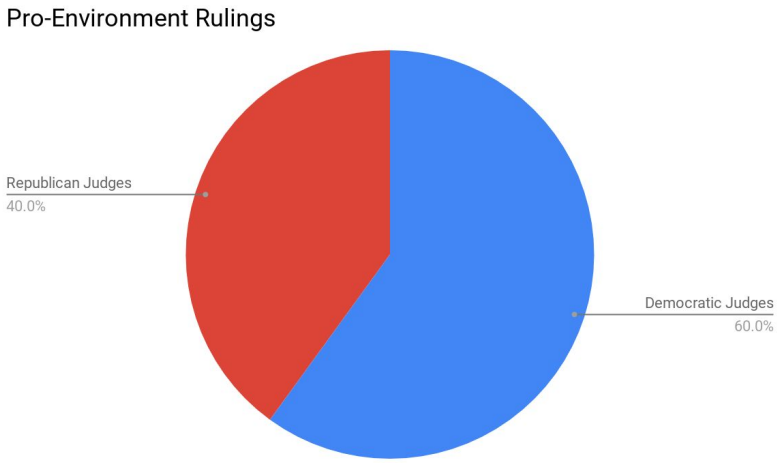


In many of the cases I studied, the dispute actually led to a change in a species' listing status. The judge determined, based on the evidence provided by the parties, that an unlisted animal should be listed or that a listed animal should not be protected. Although future research should examine the frequency with which this actually occurs, this is evidence that real,

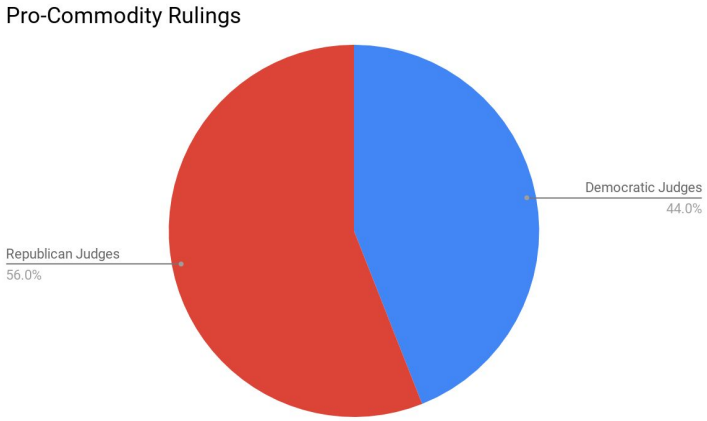
substantial changes in policy are made in the courts. This supports the concept of adversarial legalism.

Ideological Distribution

53% of the judges involved in the evaluated cases were appointed by Democratic presidents ("Democratic judges"). This conforms with my expectations that the number of Democratic judges and judges appointed by Republican presidents ("Republican judges") would be roughly equal.

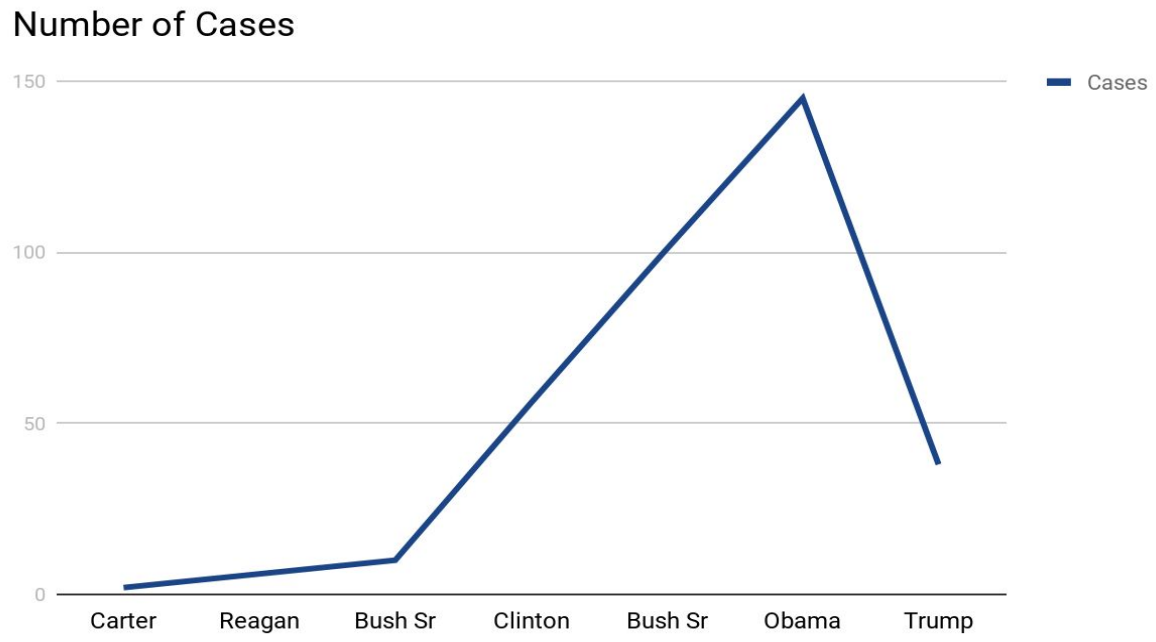


60% of the judges who handed down pro-environment decisions were Democratic judges, while 56% of the judges who made pro-commodity rulings were Republican judges. This is the ideological distribution that I anticipated, but the magnitude is less extreme than I expected. Relatively small majorities of pro-environment and pro-commodity cases were made by Democratic and Republican judges, respectively. This continues to be reflected in my inferential analysis and is further explored in my policy recommendations.



Temporal Distribution

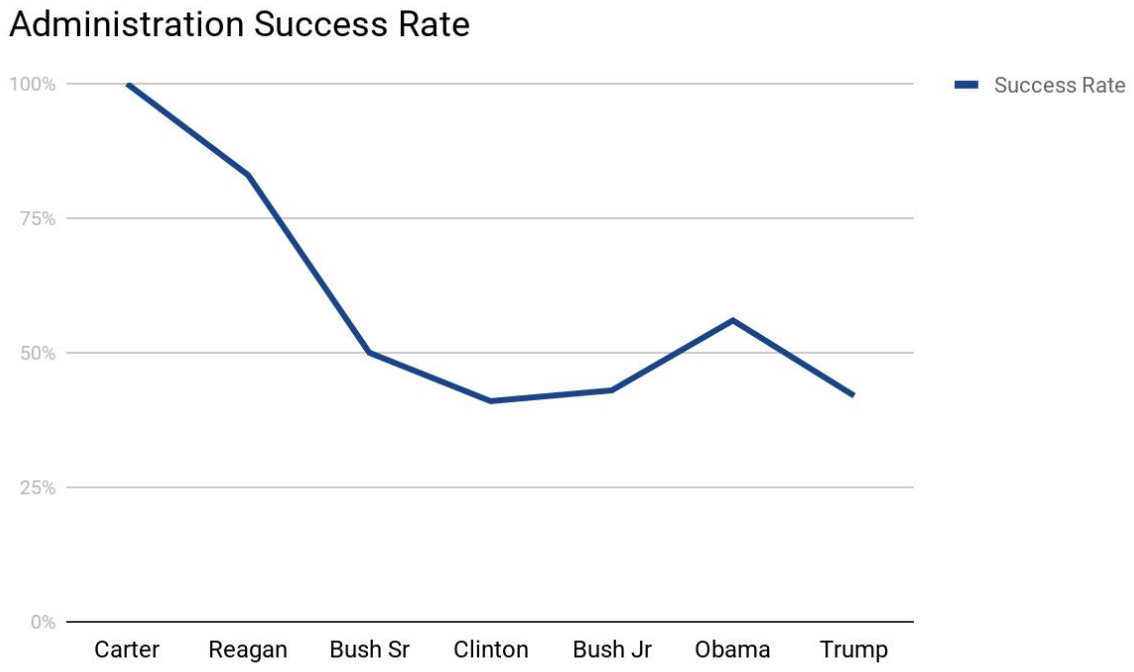
The number of ESA cases has increased over time, with agencies under the Obama administration acting as the defendant in the most cases. This correlates with the increased use of adversarial litigation as a method for policy-making over the lifetime of the ESA and the heightened controversy about the ESA and thus was an expected funding. An unexpected aspect, though, is that the Trump administration is not on track to surpass the Obama administration in its number of ESA lawsuits. Assuming that President Trump will win a second term and that the



rate of ESA lawsuits against his administration will remain constant, there will be fewer Section 4 ESA lawsuits against his administration than Obama's. The Trump administration has implemented heavily publicized rollbacks of the ESA's power, stirring up calls for legal challenges to the Trump interpretation of the ESA. As a result, I would have expected the number of ESA lawsuits to have spiked under the Trump administration. That they have not

might suggest conclusions more about the media than the government. The media may be publicizing debates over the ESA more than before in this age of increasing environmental awareness while stakeholders continue their previous behavior.

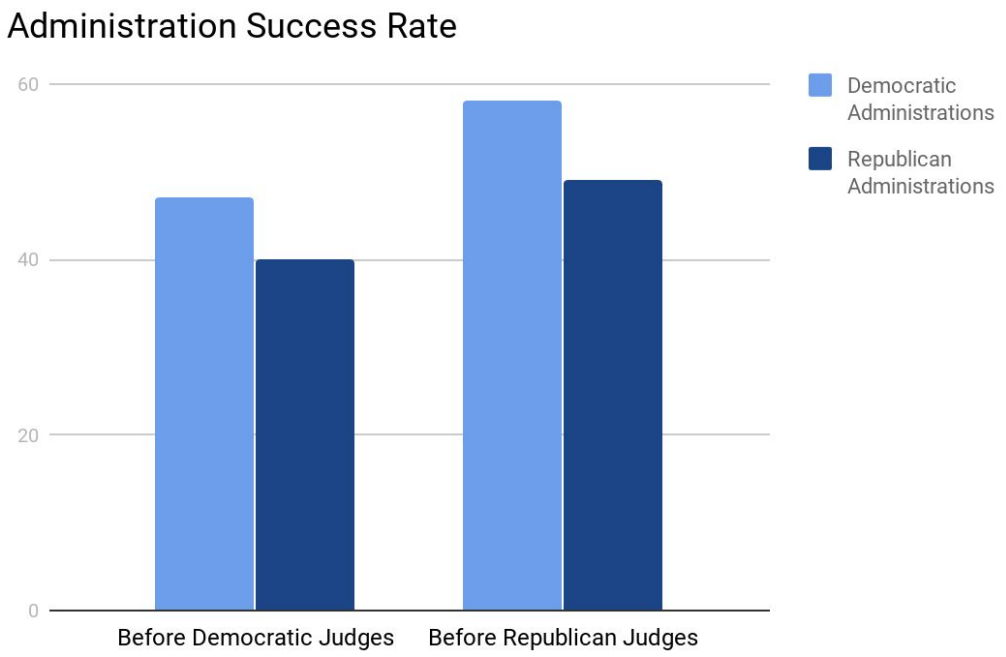
The agencies' success rate has remained largely constant over time, with the exception of the Carter and Reagan administrations, which have very high success rates. This is likely a combination of the low sample size for these two administrations and the relative lack of controversy surrounding the ESA in the 1970s and 1980s. This finding may suggest that American level of agreement over what wilderness is has changed over time. As discussed earlier, in the 1960s and 70s, the vast majority of Americans had a shared vision of nature and our relationship with it. However, over time, Americans' conceptions of nature may have diverged.



An administration success is defined as a judge deferring to the agency. Democratic administrations, aggregated, have had a success rate of 52% while Republican administrations have had a success rate of 45%.

I expected the success rates of the political parties' administrations to be roughly equal. Though they are close, they are not quite equal.

Before Democratic judges, Democratic administrations have a success rate of 47% before Democratic judges and Republican administrations have a success rate of 40%. Before Republican judges, Democratic administrations have a success rate of 58% and Republican administrations have a success rate of 49%.



Both of my findings about the success rates of the political parties' administrations are somewhat surprising. They might be attributable to the relative straightforwardness of cases brought in district courts or simply to random chance.

Spatial Distribution

Most (57%) of the cases were brought in the 9th Circuit, which comprises states in the western United States.Of the cases in the 9th Circuit, 34% were brought in the Northern and Eastern Districts of California. This is likely because the 9th Circuit covers a disproportionate amount of American public lands and, as a result, endangered wildlife. This finding is also consistent with the conventional wisdom that 9th Circuit courts, especially those in California, are more sympathetic to natural resource cases than other courts.

Parties in Cases

As expected, environmental interests brought most of the challenges (78%) to agencies' implementation of the ESA. There are several environmental organizations whose main purpose is to fight for increased protection of wilderness, especially in the courts (e.g. Natural Resources Defense Council, Defenders of Wildlife, Center for Biological Diversity). While there are also many trade organizations that have pro-commodity interests, contesting ESA protection is not a primary purpose for them.

The vast majority of cases (96%) were brought by groups rather than individuals. Of the plaintiffs who succeeded, 97% were groups. This is consistent with literature that shows that plaintiffs with the institutional support that stems from being a group are more likely to succeed in the federal courts.

96% of the defendant agencies were the agencies responsible for administering the ESA (Fish and Wildlife Service, Department of the Interior, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce). This was as expected. Although any agency can be sued for violating the ESA due to the ESA's provision requiring federal agencies not to harm endangered species, it is logical for plaintiffs to also sue the agencies responsible for implementing the ESA. I expected that agencies responsible for administering the ESA would be more successful than agencies that are not responsible for administering the ESA. 97% of the cases in which the defendant agencies succeeded had a defendant agency that was responsible for administering the ESA, although this may be due to the small absolute number of defendant agencies who were not responsible for administering the ESA.

Animals Involved

59% of the cases involve mammals or birds. This distribution does not differ drastically from the list of endangered and threatened species, 49% of which are mammals. This may be due to bias on the part of the federal agencies responsible for listing animals. However, the similarity between the proportion of mammals and birds of animals involved in cases and the proportion of mammals and birds of listed animals may suggest that mammals and birds are not actually more likely to receive attention from environmental advocates, providing some evidence in contrast to the idea that mammals and birds are more appealing and thus more likely to receive protection. This finding does support environmental advocates' claims that they choose animals on the basis of how imperiled they are and how important they are to the ecosystem, not on the basis of charisma.

This surprising finding could be due to the number of decisions that involved salmon and steelhead—lawsuits involving these fish were lengthy and spawned an unusually large number of decisions. Of the protected animals, 59% of them are mammals and birds, while 15% are amphibians or reptiles. 15% of the cases brought involved amphibians or reptiles. The rate of protection for each type of animal matched exactly with the rate of involvement of cases. While this may reflect a bias on the part of the plaintiffs who bring suits, there is no evidence of bias on the part of judges in favor of mammals or birds.

Another criticism is that the species who receive the most attention are the ones who are most charismatic, not the ones who are most in danger of extinction. 37% of the animals involved in the studied cases were charismatic. Of the cases that won the protection of the animal by a court, 34% involve charismatic animals. Again, this may suggest that plaintiff groups are

biased towards charismatic animals. However, there is no evidence that judges favor charismatic animals for protection over non-charismatic ones. This indicates that charismatic animals may function differently in the courts than in the media, potentially because there are explicit guidelines in the text of the ESA against preferring charismatic animals. This will be explored in more detail in the policy recommendations section.

Inferential Analysis

Logistic Regression

Using backward selection, I selected the best model (Appendix B). This model included the ideology of the judge, whether the plaintiff was a group, and the charisma of the animal.

Coefficient	**Estimate**	**P-value (* indicates significance for** $\alpha = 0.05$ **)**
Intercept	-1.2935	0.0627
Judge Ideology	0.6600	0.0101*
Group Plaintiff	1.4531	0.0352*
Charisma	-0.5334	0.0417*

The model accurately predicted 63% of training set cases and was incorrect about 37%. Performing a likelihood-ratio test comparing the model derived from backward selection to the model with all variables, the p-value is 0.14, which is not significant (Appendix C). This indicates that the model including all variables is not necessary to accurately predict the outcome of the cases. Performing a likelihood-ratio test comparing the model derived from backward selection to an intercept-only model (a model that has no variables), the p-value is 0.002, which

is highly significant (Appendix D). This shows that the final model, derived from backwards selection, is successful at predicting outcomes.

Keeping whether the plaintiff is a group and the charisma of the involved animal constant, the odds of a Democratic judge handing down a pro-environment verdict are 1.93 times higher than a Republican judge handing down a pro-environment verdict. My results show that the ideology of the judge is an influential factor in determining how the case will be decided, but the effect is not as large as other studies, like Segal and Cover's 1989 paper, have found. This may indicate that the relevant dimension is actually the judge's view of nature, not her liberalism and conservatism. This is consistent with theories that suggest that, although ideology is often a good proxy for one's conception of nature, it is not a perfect one.

Holding the other factors constant, the odds that the judge hands down a pro-environment verdict are 4.28 times higher for a plaintiff that is a group than for a plaintiff that is an individual. Again, this is consistent with literature that shows that plaintiffs with the institutional support that stems from being a group are more likely to succeed in the federal courts.

Holding other factors constant, the odds of a pro-environment ruling on a case involving a charismatic animal are 0.59 times the odds of a pro-environment ruling on a case that does not involve a charismatic animal. Surprisingly, the model shows that involving a charismatic animal in the lawsuit actually significantly *decreases* the chance of protection by nearly half. This unexpected finding may be due to the presence of a provision in the ESA that explicitly prohibits federal agencies from giving charismatic animals preferential treatment. This hypothesis and its implications will be further explored in the next section.

Notably, the 9th Circuit is absent from the list of significant factors. This suggests that, despite conventional wisdom that judges are more sympathetic to wilderness protection in the district courts that comprise the 9th Circuit, there is little evidence that this is actually the case. However, it could still be true that 9th Circuit judges, not the district court judges, actually are more sympathetic to wilderness protection than judges who sit on other circuits.

Model Validation

The model accurately predicted 62% of test set cases and was incorrect about 38%. Surprisingly, the model performed only slightly worse on the test set than on the training set.

The small differences in the model's performance with the training set and the test set were expected—predictive models virtually always perform better on the training data than the test data. In this case, it may have been due to overfitting the model with spurious variables, although a relatively parsimonious model was chosen in an attempt to avoid this problem. Another reason for the superior performance in the training set may be that the cases in the training set differ from the cases in the test set in some systematic way. Although the cases in the test set were chosen randomly, there may still be some internal bias affecting the accuracy of the model on the validation set. Finally, and most likely, the data set suffers from a lack of independent observations. Many of the cases were decided in the same political environment and often by the same judges. The observations are highly dependent on each other, which may have resulted in the model being tailored too closely to the training data.

Summary

My findings provide support for the attitudinal model, the extralegal model, and the legal model. The ideology of the judge is highly influential in the outcome of the case, suggesting that

judges are making decisions largely based on their personal preferences. The extralegal model is supported by the significance of whether the plaintiff was a group as opposed to an individual. The extralegal model focuses on factors outside of the judge and the case. The relevant aspect here is who the parties are. While it may be because group plaintiffs have the resources to make stronger legal cases, this still provides some evidence that the extralegal model has merit. Despite the support for the attitudinal and extralegal model, my findings also provide evidence that judges value the facts of the case. The charisma of the animal was influential in the opposite direction from what conventional wisdom would suggest. This may demonstrate that judges are heeding the instructions of the ESA to not prefer charismatic animals.

I also find that the courts' implementation of the ESA does not follow a single version of conservation, instead incorporating often contradictory elements of all four. This is in large part due to the contradictory nature of the law itself. Pro-environment decisions often lauded the pristineness of ecosystems, while pro-commodity decisions were often made with wise-use justifications. Charismatic animals' apparent disadvantage supports the idea of wildlife and biodiversity conservation. Finally, the importance of ideology suggests that judges are choosing whichever conservation approach suits them.

Policy Implications and Recommendations

Implications

When it comes to the Endangered Species Act, the traditional view of the courts, which sees them as entities that apply rules on which we all agree, does not hold. Our government still has not reckoned with the question of how we want to conceptualize wilderness and what our obligations are to it.

In some of its sections, the current form of the ESA is vague about what wilderness is. In others, it combines several different and often contradictory interpretations. As a result, the agencies responsible for implementing the ESA have little guidance for how to do their jobs and have protected endangered species sporadically. This is only exacerbated by the policy overhaul that results from each change in administration, especially those that switch between parties. The ESA does a poor job of articulating how we should interact with nature and, as a result, leaves judges to decide what wilderness is on their own, a job they are not equipped to do. In *Idaho Department of Fish and Game v. National Marine Fisheries Service*, Judge Malcolm Marsh of the District of Oregon succinctly explains the difficulty with adjudicating cases argued about an incomprehensible ESA (*Idaho Department of Fish and Game v. National Marine Fisheries Service*, 1994). He writes,

> I fully recognize that stability and recovery are two distinct legal concepts under the ESA. However, in examining the circumstances that confront listed Snake River salmon—the myriad of both human-induced and natural contributions to mortality, their unique life-cycle and geographic range—the two concepts are in many instances virtually indistinguishable. Where stability ends and recovery begins is a crucial question which must be fully explored by the federal defendants in examining what changes can be made to river operations to avoid what many commentators believe will be the inevitable extinction of these species.

The incoherent attitude towards wilderness in the ESA and in the United States in general is the elephant in the room—without addressing it, adversarial legalism will only become more adversarial and the courts will become increasingly politicized. We must interrupt this compulsion and reset it on the front-end.

Recommendations

This can only be done if our elected officials acknowledge that defining wilderness is not as straightforward as it seems and start conversations about what the modern American view of nature should be. Although Judge Marsh places the burden of making sense of the ESA on federal agencies, my data suggests that this approach has not worked for the ESA's 50-year lifetime and should not be expected to work now or in the future.

Given the gridlock and polarization that has taken hold of Congress, this may seem unlikely. However, I argue that the current debate around endangered species policy has been at an impasse because the interested parties are not arguing on the same plane. Wilderness policy has been too easily dismissed as a highly partisan issue, but that there are differing conceptions of nature even within the same party should force Congress to recognize this question is one that needs to be addressed. The controversy over the ESA is not simply about whether the federal government should protect endangered species. The underlying, core disagreement is actually about how we define wilderness and our relationship to it.

First, there are ample opportunities for further research. The first of these is a more comprehensive and accurate way to evaluate the success of wildlife conservation programs. The traditional way of doing this is by measuring population numbers or the amount of protected land. However, as discussed in the literature review, this approach neglects the natural variations

of nature and is not a fully accurate way of telling if policies are succeeding. It is a better reflection of which species and landscapes people value than whether nature is being conserved. Conceptions of conservation that allow for flux in nature and the presence of people are more comprehensive and sustainable, but the question of measuring success is more difficult. Thus, future researchers should devise new yardsticks for success. Next, researchers should exame which conception of conservation is most successful, or if the best approach is some combination of all four. Only then can policymakers have informed conversations about how to improve the ESA.

Because it is impossible to guess at what the outcomes of future research and discussions should or will be, these recommendations will focus instead on which policy conversations should be had. Specific problems with how the ESA is implemented, like the tendency to unduly value charismatic animals, represent broader problems about how we categorize and view wilderness that plague the ESA. Accordingly, specific discussions can be vehicles for the broader conversation about the American conception of nature. So far, we have been single-mindedly treating the symptoms rather than the disease. It is time to focus instead on solving the underlying problem.

One example of such a conversation is the debate about the undue attention paid to charismatic animals, itself a small consequence of our tendency to fetishize certain aspects of wilderness. After this issue became clear, the ESA was amended to include a provision specifically designed to guard against giving charismatic animals special treatment. My study shows that the courts do not protect charismatic animals at a higher rate, evidence that this

provision, borne of a conversation about a problem with how we view wilderness, has been effective.

Even problems with implementation that initially seem unrelated to the question of how we interact with wilderness actually stem from that base. One of these problems is that the listing process is rife with human error. In less than half of the cases I examined, the court ruled that the agency's response was adequate. In many of the cases I looked at, the issue at hand was that the agency had not complied with a mandatory response time to a citizen petition. This is another opportunity for a conversation. Although these deficiencies immediately strike us as simple bureaucratic incompetence, they are actually the result of a protracted fight over how much standardization belongs in the listing process. The standardization of work that requires attention to individual cases is controversial, but a large amount of cumbersome steps slows down the listing process and provides ample opportunities for political interference. The debate, then, is really about how we should categorize animals. Should we group them according to taxonomic classification? Ideal population size? Primary threats to existence? The answers to these questions will be clarified as further research into the best measurement of success is done. Afterwards, the listing process should be adjusted accordingly to allow agency staff to more efficiently and accurately process petitions.

Another deficiency in ESA implementation is insufficient measuring mechanisms. Currently, population numbers are used not only to determine whether a species should receive protection but also whether it has been successfully recovered. Despite this, structures to assess population numbers have been remarkably poorly implemented by FWS and NOAA, and little has been done to improve these metrics. This is in large part because FWS and NOAA

employees struggle to ascertain which organisms in a species should count as being a part of that species. It is often the case that organisms in a specific region will receive protection while members of the same species in another region will not—this decision is, in itself, highly controversial because it hinges on a decision about which populations of the same species are necessary or distinct. In trying to fix the problem of metrics, FWS and NOAA have focused on surface-level solutions like new tracking technology. This, however, is not the true problem with the current measures of success. The agencies must grapple instead not only with the question of which organisms count as wildlife, but whether population numbers are even the correct heuristic for measuring success.

A major problem I discovered in the course of my research is that our conceptions of nature are often too extreme and, as a result, unattainable. They either envision humans as being entirely separate from nature or as a party with license to do whatever we please. I hope that policy discussions can chart a middle path towards the ecosystem management approach. This new approach should critically evaluate where humans and nature converge and seek to improve those junctions, reintegrating human activities within ecosystem processes, rather than eliminate them. As discussed earlier, many indigenous groups have used and managed their areas for thousands of years, often actually enhancing the conservation of their land. The ESA already protects the right of Native Americans to hunt endangered species for subsistence and cultural reasons and, in doing so, implicitly recognizes that these activities pose no threat to conservation and can actually aid it. Keeping this in mind, discussions about conservation approaches and what should be allowed should seek to include indigenous people to the greatest extent possible and incorporate more indigenous wisdom into conservation principles.

These policy questions, at their hearts, are largely about how we study and analyze nature. I have recommended a shift towards a less extreme conception of nature, one with which humans can have healthy relationships. This shift should initially be propelled by conversations among ecologists to provide a scientific basis for future policy approaches. Then, our elected representatives should hold hearings with testimony from these scientists as well as stakeholders: environmental advocates, business-owners, and indigenous people with unique expertise. These hearings should be held with the goal of amending the ESA to better achieve its goal of conserving wildlife. In the meantime, as the legislative branch evaluates the principles that will be codified into the law itself, the agencies responsible for implementing the ESA should have the same conversations about how to put those principles into action. They should seek to rectify their own shortcomings while informing Congress of the actual limitations they face, not surface-level issues that appear to be the source of the ESA's poor implementation. If our government has good-faith discussions about how it wants to approach nature and takes cues from experts, the ESA will more effectively be able to protect endangered species.

Conclusion

Much ink has been spilled about the perceived politicization of the federal courts and the merits of making policy through nontraditional means like adversarial legalism. By evaluating ESA listing cases in the federal courts, this study provides strong support for the idea that policy is made through the judicial branch and fills a gaping hole in the judicial decision-making literature. It also explores how differing conceptions of nature among stakeholders have contributed to the inadequate implementation of the ESA.

After evaluating 358 United States district court cases, I find that the presiding judge having been appointed by a Democratic president and the plaintiff being a group significantly increase the likelihood that the judge will rule in favor of more ESA protections of an endangered species. Surprisingly, an animal being charismatic significantly decreases the likelihood that it will be protected. Whether the case was brought in a court that falls under the 9th Circuit is not significant. These findings are supported by a logistic regression and provide support for the attitudinal model, extralegal, and, to some extent, the legal model of judicial decision-making.

I find that the courts' implementation of the ESA is inconsistent with any one conception of conservation, which can be traced back to the inconsistent treatment of wilderness that is found within the ESA. This inconsistency forces judges to bring in their own conceptions of wilderness, which is reflected in the importance of ideology in my model. Previous attempts at reforming the ESA have been surface-level changes that do little to address the incoherent views of wilderness. Deeper changes can be made by further research among academics into which of the competing views of wilderness is most successful, for administrative officials to probe more

deeply into the implementation issues that consistently plague the ESA and to figure out solutions beyond band-aid solutions that have been heretofore used, and members of Congress holding hearings and inviting expert testimony about views of wilderness in order to codify the necessary changes into law.

Although this study indicates that court challenges can be highly effective ways of achieving policy goals, perhaps the more relevant question than whether we *can* make policy through the courts is whether we *should*. Beyond the short-term policy recommendations listed in the previous section, our political system will also have to grapple with long-term questions about how policy should be made and who should make it. The importance of an unelected judge's ideology on policy outcomes has moved closer to the front of our collective consciousness, overhauling political strategies and increasing polarization both real and imagined. A presidential or senatorial candidate's success is largely contingent on his or her stance on judicial nominees, as President Trump discovered when his support for nominating conservative jurists convinced evangelical Christians to support him, and people have begun to idolize and vilify judges with a fervor traditionally reserved for actors and pop stars.

This problem is epitomized by the debate over endangered species policy. Because our elected representatives have not done the work of deciding on a coherent view of nature, unaccountable judges have no choice but to use their own. If we don't decide on a definition of the environment, adversarial legalism over the ESA will only get more adversarial, further undermining faith in our democratic institutions.

Appendices

Appendix A: Summary of Variables

Variable	Coding
`X9.Circuit`	0: if the decision *was not* in a district court whose cases are appealed to the United States Court of Appeals for the Ninth Circuit 1: if the decision *was* in a district court whose cases are appealed to the United States Court of Appeals for the Ninth Circuit
`ESA.Version`	0: if the decision was made during 1973-1978 1: if the decision was made during 1978-1982 2: if the decision was made during 1982-1988 3: if the decision was made during 1988-present
`President.Party`	0: if the president at the time of the decision was a Republican 1: if the president at the time of the decision was a Democrat
`Congress`	0: if both the House and the Senate were controlled by Republicans 1: if the House and the Senate were controlled by different parties 2: if both the House and the Senate were controlled by Democrats
`Judge.Ideology`	0: if the presiding judge was appointed by a Republican president 1: if the presiding judge was appointed by a Democratic president
`Judge.Gender`	0: if the presiding judge was male 1: if the presiding judge was female
`Administering.Agency`	0: if an administering agency of the ESA was not party to the lawsuit 1: if an administering agency of the ESA was party to the lawsuit
`Environmental.Plaintiff`	0: if the plaintiff was arguing for fewer ESA protections

	1: if the plaintiff was arguing for more ESA protections
`Group.Plaintiff`	0: if the plaintiff was an individual 1: if the plaintiff was a group
`Animal.Size`	0: if the average adult weight of the largest animal involved in the case was less than 10 pounds 1: if the average adult weight of the largest animal involved in the case was between 10 and 50 pounds 2: if the average adult weight of the largest animal involved in the case was greater than 50 pounds
`Mammal`	0: if no animals involved in the case were mammals 1: if any animal involved in the case was a mammal
`Bird`	0: if no animals involved in the case were birds 1: if any animal involved in the case was a bird
`Reptile.Amphibian`	0: if no animals involved in the case were reptiles or amphibians 1: if any animal involved in the case was a reptile or amphibian
`Fish`	0: if no animals involved in the case were fish 1: if any animal involved in the case was a fish
`Insect.Arachnid`	0: if no animals involved in the case were insects or arachnids 1: if any animal involved in the case was an insect or an arachnid
`Other`	0: if all animals involved in the case fell into one of the previous categories 1: if any animal involved in the case did not fall into one of the previous categories
`Endangered.Status`	0: if the animal involved in the case with the

	highest endangered status was unlisted 1: if the animal involved in the case with the highest endangered status was threatened 2: if the animal involved in the case with the highest endangered status was endangered 3: if the animal involved in the case with the highest endangered status was experimental
`Charisma`	0: if each Google search for all of the animals involved in the case had fewer than 20 million results 1: if any Google search for an animal involved in the case had 20 million or more results
`Pro.Env`	0: if the judge decided on fewer ESA protections 1: if the judge decided on more ESA protections

Appendix B: R Logistic Regression Output

```
##
## Call:
## glm(formula = Pro.Env ~ Judge.Ideology + Group.Plaintiff +
Charisma,
##     family = binomial, data = train)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.5393  -1.2459   0.8545   1.0585   1.6958
##
## Coefficients:
##                 Estimate Std. Error z value Pr(>|z|)
## (Intercept)      -1.2935     0.6950  -1.861   0.0627 .
## Judge.Ideology    0.6600     0.2567   2.571   0.0101 *
## Group.Plaintiff   1.4531     0.6898   2.107   0.0352 *
## Charisma         -0.5334     0.2620  -2.036   0.0417 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 364.40  on 265  degrees of freedom
```

```
## Residual deviance: 349.28  on 262  degrees of freedom
## AIC: 357.28
##
## Number of Fisher Scoring iterations: 4
```

Appendix C: R ANOVA Output

```
## Analysis of Deviance Table
##
## Model 1: Pro.Env ~ Judge.Ideology + Group.Plaintiff + Charisma
## Model 2: Pro.Env ~ Court + X9.Circuit + ESA.Version +
President.Party +
##     Congress + Judge.Ideology + Judge.Gender + Administering.Agency
+
##     Environmental.Plaintiff + Group.Plaintiff + Animal.Size +
##     Mammal + Bird + Reptile.Amphibian + Fish + Insect.Arachnid +
##     Other + Endangered.Status + Charisma
##   Resid. Df Resid. Dev Df Deviance Pr(>Chi)
## 1       262     349.28
## 2       212     288.43 50   60.847     0.14
```

Appendix D: R ANOVA Output

```
## Analysis of Deviance Table
##
## Model 1: Pro.Env ~ 1
## Model 2: Pro.Env ~ Judge.Ideology + Group.Plaintiff + Charisma
##   Resid. Df Resid. Dev Df Deviance Pr(>Chi)
## 1       265     364.40
## 2       262     349.28  3    15.12 0.001717 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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