What Determines the Level of Funding for an Endangered Species?

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ABSTRACT. The U.S. federal government allocates resources for the protection of endangered species. Using an ordinary least squares regression, the study analyzes what variables affect the amount of funds an endangered vertebrate receives from the federal government. The results suggest that animal size affects spending decisions. Specifically, larger animals receive more money. Animals designated as high priorities by the federal government do not receive significantly more funds than animals given lower priority. Animals in conflict with economic development, however, are given preference in spending decisions. Overall, the results indicate a lack of consistency in current policy towards endangered species preservation.

I. Introduction

Species extinction is a natural process that arises from competition among species for limited resources. Nearly 90 percent of the total number of organisms that ever existed are now extinct (Brown and Shogren 1998, 4). Human development, however, has exacerbated the natural rate of extinction for animals. Today, the rate of extinction is as high as 1000 times its natural rate (Hayward, Shogren, and Tschirhart 2001, 1).

Multiple factors explain the precipitous increase in species extinction. Industrial technologies that have generated unprecedented increases in the quality of life for people in developed countries have also destroyed or polluted extensive amounts of endangered species' habitats (Pullin 2002, 66, 70). Climate change may alter species' environments. Studies link the emissions of greenhouse gasses directly to increases in the Earth's temperature (Pullin 2002, 70-71). As a result, animals adapted to a specific climate face increasing threats to their survival.

Endangered species preservation is important for several reasons. Humans depend on ecosystems for their survival, and ecosystems require an abundance of plant and animal life. Biodiversity provides humans with cultural pride and even spiritual fulfillment (Hayward, Shogren, and Tschirhart 2001, 2). Genetic contributions from endangered plants have helped create new and profitable pharmaceutical products. Indeed, these recent discoveries have led some to argue for the protection of all endangered species for their potential genetic contributions to medicine (Brown and Shogren 1998, 11).

The Endangered Species Act (ESA) passed in 1973 with broad support in the United States Congress. The Act creates a system for preserving and restoring endangered species populations in the United States (ESA, sec. 2b). The ESA allocates funds for the recovery of species that it classifies as endangered. Currently, more than 1300 plants and animals are listed as endangered or threatened by Fish and Wildlife Services (FWS), the government agency responsible for the administration of the ESA (U.S Department of the Interior 2006b; ESA, sec. 8a).

The overall effectiveness of the ESA is debated. Schwartz (2008) summarizes several shortcomings of the current legislation. Thousands of species that are already endangered to some degree are not listed, and the funding levels for the ESA are inadequate for species restoration projects (289). Also, the current allocation of resources for endangered species preservation provides a disproportionate amount of funds to a relatively few species (289). Because the listing of an endangered species is a political decision, interest groups and other external influences may arbitrarily determine which animals are selected (Ando, 1999, 1). The problems associated with the Act have led many to call for comprehensive reform of the government's role in endangered species preservation.

Economists hypothesize that the ESA may also create perverse incentives for private landowners. A majority of endangered species' habitats are located on private land. While landowners have incentives to develop their property, the federal government may forbid development if it poses a threat to an endangered animal's habitat. Landowners may attempt to destroy endangered species populations or habitats on their land before the federal government discovers the endangered species and issues regulations for its protection. This phenomenon is known colloquially as "shoot, shovel, and shut up" (Langpap 2006, 559). Recent economic literature supports the hypothesis. Zhang (2004) and Lueck and Michael (2003) use empirical models to examine the effects of ESA regulations on the private-land habitats of the Red-Cockaded Woodpecker (RCW). According to both studies, landowners harvest timber sooner than they would in the absence of expected ESA regulations (Lueck And Michael 2003, 51-52; Zhang 2004, 162). Thus, the ESA indirectly decreases the habitats of the RCW, a conclusion that suggests the ESA may actually harm certain endangered species that the Act is designed to protect.

Various agencies, institutions, and interest groups influence spending decisions and recovery programs designed by the FWS. Congress decides the total budget for the FWS, which in turn decides how to allocate its budget to specific species. Members of Congress are influenced heavily by their respective constituencies and their own ideologies. Mehmood and Zhang (2001) examine the voting decisions of U.S. Congress members on ESA amendments. According to their study, political incentives vary considerably across regions and constituencies. Specifically, politically liberal representatives show more support of ESA listing and spending decisions than conservatives (506). Also, the geographical regions represented by members of Congress affect their voting decisions regarding ESA funding levels. Specifically, the more endangered species a region has, the more the representative is likely to support increases in ESA funding (510). Given the diverse geography of the United States, different representatives have markedly different incentives that guide their decisions about biodiversity preservation.

List, Bulte, and Shogren (2002) hypothesize that states have different incentives than the federal government to protect endangered species. Specifically, states may not want to preserve species that conflict with economic development projects (306). Their study finds that states free-ride on federal government spending decisions to avoid expending further resources on an animal that may inhibit economic development plans (312). The larger implication of their analysis is that politics affects spending decisions for endangered species.

While the ESA is the subject of extensive academic and political debate, the paper restricts its analysis to the revealed spending decisions of the federal government on endangered vertebrates. The paper uses an ordinary least squares (OLS) regression to examine the determinants of funding for an endangered vertebrate. The results suggest that an animal's size affects the amount of funds it will receive. Specifically, larger animals receive more funds. Priority ranking systems created by the FWS to ensure more consistency in resource allocation for endangered animals do not affect the amount of funds an endangered animal receives. The study contributes to the discussion concerning how the federal government allocates resources for endangered species.

II. The Noah's Ark Problem

Metrick and Weitzman (1998) develop a theoretical model to consider different factors that affect biodiversity preservation. Referred to as the "Noah's Ark Problem," they establish four criteria to determine the amount of resources that should be allocated to the preservation of any particular species. The four criteria are: (1) *Distinctiveness*, that is, to what extent a species is genetically unique relative to other animals in its genus; (2) *Utility*, or the value people assign to various animals; (3) *Survivability*, the potential for an animal to recover if it is allowed to enter the ark; and (4) *Cost*, the amount of resources necessary to recover and maintain a species's population (22; 26). Intuitively, the model reveals various issues that must be addressed to develop a coherent strategy for allocating endangered species funds. With a finite amount of space on the ark and limited resources available, Noah must make decisions based on the four factors mentioned above; attempts to quantify the different criteria, however, can be difficult.

Capturing the utility of a particular animal involves identifying the different types of values inherent in endangered animals. For instance, animals may have commercial value, where people pay money to observe certain animals in their natural habitat. This value varies considerably across species. Another measure of utility is an animal's existence or aesthetic value, which is the satisfaction people gain from knowing that an animal exists even if the animal is never physically observed. Yet quantifying a species' aesthetic value is a difficult and largely speculative process (Brown and Shogren 1998, 12-13). Likewise, an animal's contributory value, or its contributions to a broader ecosystem, is difficult to observe and monetize (Metrick and Weitzman 1996, 3-4). The problems inherent in assigning values to endangered species make spending decisions based on these values challenging.

Another problem with applying Metrick and Weitzman's theory is the different weight associated with each criterion. An animal such as the bald eagle, for example, currently faces a relatively small threat of extinction. Resources devoted to the bird's preservation, though, are much greater than for other animals who are more critically endangered (Dawson and Shogren 2001, 531). In other words, the survivability measure for the animal is outweighed by its utility, i.e. its commercial and existence value. Despite such practical considerations, the "Noah's Ark Problem" is still helpful in considering spending decisions for endangered species. The theory describes the underlying issues that must be addressed in the country's endangered species preservation policy.

III. Literature Review

Empirical studies that determine what variables affect an endangered vertebrate's funding level typically use some of the same measurements in their analyses. For instance, an animal's degree of endangerment, given by NatureServe, an affiliate of The Nature Conservancy, is used to examine whether the most critically endangered animals are given preference in spending decisions. Studies use an endangered vertebrate's priority level, determined by the FWS, to see if the government abides by its own stated preferences for a given species. Since 1983, the FWS has assigned each endangered or threatened species a priority ranking ranging from 1 to 18, with one being the highest priority. The system assigns a rank based on an animal's degree of threat, its genetic distinctness relative to other species in its genus, and its recovery potential (Simon, Leff, and Doerksen 1995, 417).

The ranking system also uses a "conflict" designation within the priority ranking to identify species currently threatened by economic development projects (Metrick and Weitzman 1996, 13). For example, an animal may be given a priority designation of "9C," meaning that while the animal is not a top priority, it faces uncommon threats to its survival due to development activities near or within its habitat. The conflict designation is meant to give preference to an animal with the designation over other species with similar priority numbers. It is not meant to outweigh the species priority number classification (Simon, Leff, and Doerksen 1995, 417), so an animal with a classification of "1" should still be given higher priority than an animal with a classification of "3C."

Previous studies have discovered several factors that affect the spending decision for a particular species. Simon, Leff, and Doerksen (1995) use a standard OLS regression to analyze the importance of the priority ranking system. They find no correlation between the priority ranking and amount of funds an animal receives (430). The conflict designation is significant, which suggests the FWS violates its own method of assigning importance to different species (431). Taxonomy is significant, meaning groups of animals with physical features most similar to humans, such as mammals, receive more funding than other groups such as amphibians or reptiles (432).

Metrick and Weitzman (1996) use data collected from 1989 to 1991 to examine the determinants of funding for endangered vertebrates. The length of an animal has a positive and significant affect on its funding level in their study. Large animals, or "megafauna," are likely to receive more funding than smaller animals, ceteris paribus. They also find the priority rank of an animal to have a negative and significant effect on the spending decision. This means the higher degree of priority assigned to an animal, the more funding it will receive (13). Conflict designation is modeled as a dummy variable that takes the value of one if a species's priority rank has a conflict designation, and zero otherwise. According to the study, animals in conflict with development projects receive significantly more funding than animals without such designation. The degree of endangerment for an animal, on a scale of one to five, is positive and significant, a surprising result that implies that the less an animal is endangered, the more funding it will receive (11). Metrick and Weitzman qualify this result by suggesting that an omitted variable bias may be responsible for the perverse outcome of the regression. In other words, variables not contained in their model may bias their results in a specific direction (12). The taxonomy of the animal is also important in their study. For instance, reptiles appear to receive less funding than fish (11). While certain reptiles may be closer in appearance to humans than fish, a natural human aversion may exist towards reptiles such as snakes and lizards. The current study uses Metrick and Weitzman's model to analyze spending decisions on endangered vertebrates using data from 2006.

Dawson and Shogren (2001) update Metrick and Weitzman's findings and offer a remedy for the potential omitted variable bias in the initial study. Using data from 1993 to 1996, they employ a fixed-effects model to analyze the spending decisions for endangered species over the course of several years. They find that the change in the priority ranking and conflict designation of an animal on a year-to-year basis has no effect on the spending decisions of a particular species (530). They argue that funding for endangered vertebrates is not guided by short-term changes in the relative endangerment of an animal. Instead, the FWS may take a more long range view in allocating resources. For instance, while the "megafauna" variable is significant in their study, they hypothesize that the larger animals may receive more funds because of their commercial and aesthetic value. The FWS may also have more extensive knowledge of "megafauna" habitats (530).

IV. Data and Descriptive Statistics

The FWS provides an annual report of expenditures on each species listed as endangered or threatened. In 2005, the FWS changed the way it reported expenditures for specific species (U.S. Dept. of the Interior 2006b). Employees of the FWS responsible for the preservation of all endangered species at a single national park protect several animals at once. The current method divides a portion of the worker's total salary among all the endangered species in his jurisdiction. The previous reports would assign the total salary to only one specific species. Consequently, comparisons of new data sets to previous data sets cannot be made. Nevertheless, the new accounting methods provide a better measure of the total amount of resources spent on a single animal, and are an improvement over the previous data provided by the FWS.

The data include listed endangered or threatened vertebrate animals in 2006 who received funding from the federal government (U.S. Department of the Interior 2006b). However, the National Marine Fishery Service is ultimately responsible for the care and protection of salt-water species such as whales or ocean turtles. Therefore, ocean-based endangered species are not included in the data set. Furthermore, the FWS reports funding for endangered species who live in the Virgin Islands, Guam, Puerto Rico, and other various U.S. territories. These animals are not included in the data set because the FWS does not assign a priority ranking to them (U.S. Department of the Interior 2006c). The final data set includes 286 observations of endangered and threatened vertebrate animals.

The total expenditures for each species varies from $150 for the Sinaloan Jaguarundi, a small cat found exclusively in Arizona, to over $38 million for the Pallid Sturgeon, a freshwater ray-finned fish found in the Mississippi River (U.S. Department of the Interior, 2006b). The following table lists the top ten endangered species who received the most funding in 2006:

TABLE 1–Top Ten Species by Total Spending

Common Name	Taxonomy	Spending (In Millions of Dollars)
Pallid Sturgeon	Fish	38.9
Bull Trout	Fish	23.9
Southwestern Willow Flycatcher	Bird	15.0
Red-Cockaded Woodpecker	Bird	14.3
Gopher Tortoise	Reptile	13.3
Bald Eagle	Bird	12.3
Desert Tortoise	Reptile	10.6
Razorback Sucker	Fish	10.5
West Indian Manatee	Mammal	9.7
Rio Grande Silvery Minnow	Fish	9.7

A few conclusions can be drawn from Table 1. First, while the bald eagle is commonly seen as the most recognizable endangered species, its funding level has decreased considerably in recent years. It received the most funds of any endangered vertebrate in Metrick and Weitzman's original study (1995, 2). Also, the top ten species include four fish, while Metrick and Weitzman's data from 1989 to 1991 include none. The increased funding for fish such as the Pallid Sturgeon may reflect the underlying contributory value that fish provide for their habitats. It may also demonstrate an increased emphasis on their potential for tourism value (Burton, 2000, 4). Interestingly, the Red Cockaded Woodpecker, the Bald Eagle, and the West Indian Manatee are the only animals who appear on both Metrick and Weitzman's listing of the top animals and in the current table.

The animals are separated in the data according to the five different classes of vertebrates: mammals, birds, fish, reptiles, and amphibians. There are 19 amphibians, 31 reptiles, 64 birds, 67 mammals, and 105 fish in the study. Dummy variables are given to each animal according to its class. For example, an American alligator is given a value of one for reptile, and zero for all other classes. Theoretically, different classes of animals may be given preferences in funding over other animals depending on whether people have preferences for specific types of animals. For instance, a mammal may receive more funding than an amphibian because a mammal is closer in physical appearance to humans than an amphibian. The descriptive statistics for the data are listed in Table 2:

TABLE 2–Descriptive Statistics

Variable	Average	Minimum	Maximum
2006 EXPENDITURES	$1,316,000	$150	$38,900,000
AMPHIBIANS	0.07	0	1
BIRDS	0.22	0	1
FISH	0.37	0	1
MAMMALS	0.23	0	1
REPTILES	0.11	0	1
LENGTH	0.43 meters	0.02 meters	4.5 meters
GLOBAL ENDANGERMENT RANK	1.73	1	5
PRIORITY NUMBER	5.57	1	18
CONFLICT DESIGNATION	0.46	0	1

N=286 observations

The length of a species is determined from various biological reference books (Allen 1983; Lee, et al. 1980; Lowe, et al. 1990; Nowak 1991). If an animal's length could not be found, a length is estimated using information from closely related species. The length of animals varies from .02 meters (less than one inch) to 4.5 meters (roughly 15 feet). The smallest animal in the data set is the Devil's Hole Pupfish, while the largest animal is the White Sturgeon. To achieve the best fitting line, the final regression uses a natural log of the length of each animal.

The global endangerment ranking comes from the NatureServe website, an affiliate of the Nature Conservancy. The ranking system ranges from one to five. One is the most critically endangered, and five is relatively stable. The intervals of the global endangerment rank are applied consistently, and the Nature Conservancy carries out extensive data collection to ensure the accuracy of its findings (NatureServe; Metrick and Weitzman 1996, 5). The rank distinguishes between the global endangerment of an entire global species population and the endangerment of subspecies or specific local populations of a species. Global endangerment rankings only assign a "G" before the ranking of an animal. For instance, "G1" designates a species whose global population is critically endangered. Subspecies or specific populations of species have an additional "T" rank that follows the "G" rank. For example, a Sonoran Proghorn has a rank of "G5T1," indicating that globally, the pronghorn species is stable because of its "G5" rank. The Sonoran Pronghorn subspecies, however, a type of pronghorn found only in the Sonoran Desert in Arizona, is critically endangered because of its ranking of "T1." In the study, the global endangerment rank for a subspecies or specific population is used where appropriate. If the Nature Conservancy cannot ascertain with complete certainty an animal's degree of endangerment, it provides a range. For example, the California Red-Legged Frog has a rank of "G2G3." In such cases, the number assigned to the data set is an average of the two ranks. The California Red-Legged Frog, therefore, is given a global endangerment rank of 2.5 in the study.

The priority ranking system ranges from 1 to 18 and is updated annually by the FWS. The system considers an animal's recovery potential, its genetic distinctness relative to other animals in its genus, and its degree of endangerment (Simon, Leff, and Doerksen 1995, 417). Consequently, it is not commensurate with the global endangerment ranking. 11 animals in the study have a priority ranking of one. The conflict designation variable, a component of the priority ranking system, is used to see if animals in conflict with economic development projects are given preference in spending decisions. Previous studies consider the extent to which the conflict designation represents external political pressures (Metrick and Weitzman 1996, 14). For example, animals under siege from economic development projects receive more coverage in the media. As a result, constituents and interest groups pressure members of

Congress to earmark funds specifically for the species being threatened. The conflict designation is a dummy variable that takes a value of one if the animal has the designation, and zero otherwise. 132 animals in the study have a conflict designation.

V. Model and Predicted Signs of Coefficients

The empirical model used to determine what variables affect the level of funding for an endangered species is as follows:

(1) LN(2006 EXPENDITURES)= $\beta_0 + \beta_1$(AMPHIBIANS) + β_2(BIRDS) + β_3 (MAMMALS) + β_4(REPTILES) + B5LN (LENGTH OF ANIMAL) +$_{B6}$(GLOBAL ENDANGERMENT RANK) + $_{B7}$(PRIORITY NUMBER) + $_{B8}$(CONFLICT DESIGNATION) + $\in$

The dependent variable of the ordinary least squares (OLS) regression is 2006 EXPENDITURES for endangered species. To achieve the best fitting line, the dependent variable in the final regression uses a natural log of 2006 EXPENDITURES. In addition, the different values of a vertebrate's taxonomic group are captured by dummy variables for the different classes of vertebrates. Fish are the omitted class of vertebrate animals, so the dummy variables assigned to the remaining classes of variables will compare the different classes of vertebrates to fish. Also, because people may assign greater value to species that are most similar in physical appearance to themselves, MAMMALS are expected to receive more funds than fish, ceteris paribus, while AMPHIBIANS should receive less. REPTILES should receive less money than fish, even though certain reptiles may appear closer to humans in appearance than fish. Natural aversions to REPTILES such as snakes and lizards are expected to make them less appealing to humans than the control class of fish. The coefficient for BIRDS is unclear.

In keeping with previous empirical studies (Metrick and Weitzman 1996, 1998; Dawson and Shogren 2001; List, Bulte, Shogren 2002), the model includes the length of an animal as an independent variable. The natural log of length is used in the final regression. As the length of a species increases, the amount of funding the species receives is expected to increase. Larger animals, or "megafauna," may have greater existence or aesthetic values that make people more willing to preserve them than smaller animals. The length of an animal may capture the utility of a specific species to humans, especially commercial and aesthetic utility.

The GLOBAL ENDANGERMENT RANK ranges from one to five. One is critically endangered and five is relatively stable. The coefficient of GLOBAL ENDANGERMENT RANK is expected to be negative and significant. As the degree of endangerment increases for a particular animal, its funding should increase relative to other animals that are in less danger of becoming extinct. PRIORITY NUMBER ranges from 1 to 18 and the sign of its coefficient is expected to be negative and significant. The sign for CONFLICT DESIGNATION is expected to be positive and significant. Species in conflict with economic development projects may receive more attention from the media and interest groups who can lobby for more funds from the government.

VI. Results

Table 3 provides the results from the model described in equation (1):

TABLE 3–OLS Regression

Dependent Variable: (LN (2006 Expenditures)	Coefficient	Standard Error	T-Ratio
AMPHIBIANS	-.051	.422	-0.1209
BIRDS	.179	.295	0.607
MAMMALS	-1.005**	.298	-3.379
REPTILES	-1.140**	.388	-2.937
LN (Length of Species)	.596**	.106	5.607
GLOBAL ENDANGERMENT RANK	.563**	.120	4.715
PRIORITY NUMBER	-.0432	.0292	-1.481
CONFLICT DESIGNATION	1.271**	.214	5.946
CONSTANT	12.216**	.420	29.07
N = 286	ADJ R^2=0.3320	F-VALUE=0.000	

**significant at the one-percent level.

The adjusted R squared is 0.3320, a result that is similar to previous research done in the field. The dummy variable for MAMMALS is negative and significant, suggesting that mammals included on the endangered species list receive less funding than fish, ceteris paribus. The finding is contrary to all previous studies, suggesting the FWS has altered its spending decisions in recent years. The result is consistent with the view that the FWS has chosen to preserve more fish in recent years due to their commercial and contributory values. REPTILES receive less funding than fish, which is consistent with previous studies. Unlike previous studies, AMPHIBIANS do not receive significantly fewer funds than the control class in the current analysis.

The natural log of the length of a species is positive and significant, a finding that supports the idea that the federal government prefers to spend more money on "megafauna." For each percentage change in a species length, spending increases nearly 60 percent, a result that may capture the willingness of the federal government to place more weight on an animal's aesthetic and commercial utility. Dawson and Shogren (2001) hypothesize that the significance of the length variable may be the result of the animal's contributory value, or its presence in a well-known ecosystem (531). Furthermore, the FWS may have more extensive knowledge of the species' habitat and long-term value. Consequently, spending decisions may be based on a macro-level thinking of an animal's total value to society.

The sign and statistical significance of GLOBAL ENDANGERMENT RANK suggests that as an animal becomes less endangered, it receives more funding than animals with a higher degree of endangerment. While the result is counterintuitive, it is consistent with Metrick and Weitzman (1996), the study used as a basis for the current model. They reason that the constant in the equation may be capturing omitted variables. For example, the "charisma" of an animal cannot be measured and may bias the results one way or another (11-12). Another reason for the result may be what the present study will refer to as the "bald eagle effect." The bald eagle has a GLOBAL ENDANGERMENT RANK of five, yet its funding level still places it in the top ten for all endangered species. If the FWS wishes to protect certain species regardless of their degree of endangerment, then animals with a low degree of endangerment who receive an disproportionate amount of funds may weaken the explanatory power of the GLOBAL ENDANGERMENT RANK variable. Alternatively, if the model is correct, then the less an animal is endangered, the more funding it receives. If the federal government wishes to preserve species regardless of their level of endangerment, they should be clear about this in their policy decisions. While such an explanation is consistent with the findings, studies that examine multiple years may provide a better assessment of the explanatory power of the ranking variable.

The PRIORITY NUMBER variable is not statistically significant, a result that differs from Metrick and Weitzman's original study that found PRIORITY NUMBER to be negative and significant. Their results suggest animals with a higher degree of priority receive more funding. However, List, Bulte and Shogren (2001) show that year-to-year changes in the priority ranking classification of an animal do not correspond to changes in the funding levels for that animal (530). If the priority ranking is not sensitive to year-to-year changes, then the explanative power of the PRIORITY NUMBER variable for a single year may be weak. Regardless, the lack of the significance for the variable in the current study, even for the single year studied, implies that spending decisions do not correspond to the priority ranking designation assigned by the FWS. Further studies that examine the sensitivity of a change in the priority ranking of a specific species may help to explain the usefulness of this variable in spending decisions. If the ranking is not a significant factor in determining the level of funding for endangered species, its usefulness for guiding spending decisions is questionable.

The CONFLICT DESIGNATION variable has the largest coefficient of the independent variables and the highest degree of significance. If an animal's priority ranking designation includes a conflict designation, that animal receives 127 percent more funding than an animal with a similar priority ranking but no conflict designation. The size of the coefficient reveals the willingness of the federal government to spend money to protect animals in conflict with development activities. The stated policy of the FWS makes clear that the conflict variable is not meant to outweigh the priority ranking, only to give preference to animals with similar priority numbers. The result may demonstrate the extent to which an endangered species in conflict generates attention from private interest groups and the media. The attention may affect the political currents of spending decisions. If a "media bias" exists, it explains why animals in conflict receive a disproportionate amount of funding from the federal government. While the explanation has merit, it suggests an inconsistency in the government's current approach towards endangered species preservation.

VII. Conclusion

Previous studies examining the level of funding for an endangered species have discovered several factors that influence spending on specific animals. The current results suggest that a species's length is still a significant determinant of an animal's level of funding. "Megafauna" may possess some underlying utility, including commercial, aesthetic, and contributory value that could account for the larger amounts of money spent on these animals. Mammals receive less funding than fish, a result that is different from all previous studies. The finding is consistent with the view that the federal government has altered its spending preferences in recent years. The perverse sign of the global endangerment rank is consistent with Metrick and Weitzman's original study and may signal an omitted variable bias that affects the regression. Another explanation may be a "bald eagle effect," whereby certain animals receive more funding regardless of their actual risk of extinction. If the "bald eagle effect" exists, then the government should make clear that the degree of endangerment of an animal is not considered in the spending decision. Otherwise, their current policy of protecting species according to need is not applied consistently.

The priority rank of an endangered species is not significant, suggesting the federal government does not abide by its own system of species valuation. However, the conflict designation is significant and its coefficient is large, implying that animals threatened by economic development projects may receive more funding. An explanation for this outcome may be a type of "media effect" that increases lobbying efforts from interests groups. While the explanation makes sense, it demonstrates a lack of coherency in government choices concerning endangered species spending.

The overriding political considerations inherent in any spending decision ultimately determine spending decisions for endangered animals. Further research concerning the politics of spending decisions for endangered species will be helpful to identify variables not included in the current model. Measures of the influence of interest groups, the preferences of geographically distinct constituencies, and the influence these constituencies have on congressional representatives may help explain the current contradictions suggested by the model.

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