

## Insights and Applications

# The Endangered Species Act Petitioning Process: Successes and Failures

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*The Endangered Species Act (ESA) has been a legislative tool whose critics have derided its misuse and proponents have sought to strengthen its implementation. To determine whether the ESA is being used to protect species rather than to preserve land, and if the subsequent listing is influenced by petitioner affiliation, we conducted a content analysis of listing petitions. We found that most petitions attempted to list a single species versus several species, which indicates that these petitions were concentrating on species-specific, not habitat-based, issues. Once petitioned for listing, government agencies did not bias the listing of species by taxa. However, species proposed by petitioners with a national geographic focus had a greater likelihood of being listed as compared to other petitions. This difference in effectiveness indicates listing may be influenced by petition quality or petitioner's political skill and should be explored further.*

**Keywords** Endangered Species Act, ESA, habitat protection, listing petitions, species protection

The Endangered Species Act of 1973 (ESA) has been one of the most important and controversial environmental laws passed in this country. The ESA charges the United States Fish and Wildlife Service (U.S. FWS) and the National Marine Fisheries Service (NMFS) to conserve the nation's most imperiled species. Under this law, 1259 species have been listed as threatened or endangered within the United States, and critical habitat has been designated for 155 of these species (U.S. FWS 2002). Since its inception, the ESA has generated increasingly vituperative debate, over both its effectiveness for species preservation and its impacts on the use of both public and private lands. Given the charged atmosphere surrounding the ESA

Received 22 February 2000; accepted 22 August 2002.

We thank Dan Doak, Jennie Kluse, Marc Mangel, Daniel Press, Priya Shahani, and Paul Steinberg for their intellectual support. We also thank four anonymous reviewers, Donald R. Field, and Richard S. Krannich, whose insight and help in evaluating this article greatly improved its content. Order of authorship determined randomly.

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(Martin 2001) and its potential reauthorization (Thomas 1999; Young 2000), it is clearly important that both scientists and policymakers understand how the public and the government have actually used the ESA to list species. Past reviews of the ESA have sought to evaluate its effectiveness solely by examining the implementation of the act's provisions by the U.S. FWS and NMFS once a species has been listed (Bean et al. 1991; U.S. GAO 1992; Schemske et al. 1994; Carroll et al. 1996). However, all of the actions of these agencies are in fact regulated responses that can only be set in motion by a petitioner's request to list a species.

Due to specific provisions of the act, the ESA can be used as a tool for land preservation by seeking to protect species and subsequently the habitat in which they live. The protection of species through preservation of its habitat is outlined under two of the more significant and controversial sections of the ESA. Section 2(b) of the ESA establishes Congress's intent for the act "to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved" (U.S. Department of the Interior 1988). The protection of animal species and subsequently the preservation of habitat are further enhanced by Section 9 of the ESA and a precedent-setting court decision, *Babbitt v. Sweet Home Chapter for Greater Oregon* (U.S. Supreme Court 1995), which prohibits the "taking" of an endangered animal by altering or destroying its habitat. Together, these two provisions allow for the protection of species through the preservation of the habitat on which the species depend.

Although the preceding provisions seek to protect species, they provide a uniquely powerful tool to protect an area of land. Under the ESA, protection of habitat is corollary to species protection. However, use of a species-based approach to protect habitat allows special-interest groups to manipulate the intent of the act beyond the scope of its original focus (Eldredge 1991) and target particular habitats or localized areas for preservation under the guise of single-species protection (Sugg 1997). Even though a number of organizations (Press et al. 1996) and the federal government (Clark 1994) have continued to advocate the appropriateness of this legislation for the protection of species, the potential for its misuse remains open.

For example, old-growth forest protection is achieved through conserving habitat for the northern spotted owl (*Strix occidentalis*)—a situation in which just such claims of poor or improper use of the ESA have been made (Conservation: owlageddon 1991; Niemi et al. 2000). However, there are few other options for habitat protection since there are few federal regulations, and in most cases no state or local ones, that provide the means for protecting areas of land. Thus, habitat protection available under the ESA provides one of the few means by which individuals can preserve areas that are perceived to be in danger of development.

This potential incongruity between the application of the ESA and its intent to protect species is the central focus of our investigation. Do individuals or groups utilize the ESA to petition to list as many species as possible (i.e., using a multi-species petition) within a specific area of concern? This may indicate a petitioner's desire to protect either ecological communities as a whole or the land, itself. By attempting to list a number of species within a specific area, the petitioners block the area from any potential development until a decision regarding the listing of each individual species within the petition is made. If habitat rather than species protection is paramount, more species per petition should be seen in petitions covering smaller areas where numerous species ranges tend to overlap. These petitions should also be drafted by political groups or individuals whose main focus is also small areas of land (e.g., a county vs. the nation). Once a species has been petitioned for

listing, what is the eventual outcome of the process? In particular, we also seek to complete an analysis of the listing process and examine whether particular groups of petitioners (e.g., local vs. national) are more likely to successfully list species or if a particular taxon (e.g., vertebrate vs. invertebrate) is more likely to be listed.

To address whether multiple species petitions are increasingly common and whether this potential use of the ESA to assure habitat protection influences the eventual listing status of a species, we formulated four specific questions:

1. Do the number of species per petition differ by geographic area? For example, do petitions covering smaller areas have any more or fewer species per petition than petitions covering larger areas? If they have more species per petition, this may indicate that the larger motivation for the petition is to protect habitat.
2. Does a petitioner's area of concern determine the number of species per petition? For our analysis, the area of concern is delineated by the group's central focus. For instance, the National Audubon Society focuses on national issues. Do their petitions contain greater or fewer species than petitions brought forth by groups concerned with local issues?
3. Does the petitioner's area of concern determine the area covered by a petition? For example, do groups that focus on local areas petition to list only species whose habitat covers a limited area?
4. Once a species is petitioned, does the petitioner's area of concern, a species taxon, and whether or not the petition contains a single species or multiple species bias the potential listing of that species?

If the answer to the first three questions posed is yes, this could indicate political motives to preserve habitat under the ESA rather than biological motives behind the efforts to list a species. For example, if groups submit multispecies petitions for small areas of land, these petitions may actually be submitted in order to protect habitat rather than focused solely on protecting species. The fourth question attempts to ask whether the listing process is unbiased with regard to the petitioner, the taxa, and the petition itself.

## Research Methods

Due to the large number of petitions that have been submitted to the government since the ESA's inception, we limited our research to all ESA petition notices published in the *Federal Register* between 1987 and 1996 for species occurring in Washington, Oregon, and California. The far West and the Southeast are regarded as centers of endemism by both government agencies and scientists (U.S. GAO 1992; Dobson et al. 1997). Of these two areas, the West Coast is an ideal setting for our study because of a concentration of highly organized environmental groups concerned with local and national issues. Thus, we decided to focus on the far West.

To fully elucidate the use of the ESA by public groups, we first conducted a content analysis of listing petitions published in the *Federal Register*. Similar analyses of federal documents have been used in the past to examine policy with regards to various environmental and nonenvironmental issues (Gale 1992; Shaw 1998). By using this method, we sought to avoid the potential pitfalls of direct interviews by conducting an analysis that examined solely the petitioner's revealed preferences (i.e., how the petitioners actually use the ESA) rather than their stated preferences

(i.e., what the petitioners are willing to reveal to the surveyors during the interview period) (Huang et al. 1997).

Each *Federal Register* document we examined contains information on the individuals or organizations that proposed an ESA listing, what species were proposed, the date proposed, and what federal action has been taken on the proposal to date. In addition, each document gives a variable amount of information on the species itself, usually including the species habitat requirements, species range, and areas where the species is proposed for listing. In order to evaluate our questions, we recorded the species being proposed, its taxon, number of species coproposed, the area of concern of each organization proposing a listing and the size of the area in which the listing was proposed. Additionally, to determine which species eventually become listed, we examined whether a species had been listed as endangered or threatened, was still under consideration for listing, or was denied listing by the government on or before May 1999.

For each petition, the organizational area of concern was defined as national, regional, or local. Groups were classified as national if their resources and main focus were drawn from that level (e.g., the National Audubon Society). There are some national organizations that may focus on events occurring at small geographic scales as well (e.g., The Nature Conservancy) but the majority of the groups we classified as national meet the cited criteria. Regional groups were defined as those that address issues within specific areas of the country (e.g., Oregon National Resources Council, ONRC). Local groups were ones that had a specific municipality or county focus when addressing issues of environmental concern (e.g., the San Diego Biodiversity Project). Local and regional chapters of national organizations were treated as national organizations. Similarly, we classified the size of the area the petitioner designated as important for species survival as multistate (proposed area occurs within two or more states), state (area occurs only within a single state), or county (area only occurs within a single county). We chose these classifications for two reasons. First, they corresponded to the sizes of the areas of concern for the environmental organizations, and second, these groupings correspond to the spatial resolution outlined in most listing petitions.

In total, we examined 161 petitions containing single or multiple species. All petitions submitted by the Smithsonian Institution as designated by Section 12 of the ESA were excluded from analysis. Since the Smithsonian is a government institution, analysis of these petitions would not lend insight into the use of the ESA by the public. Additionally, other petitions were excluded from the data analysis if the petitioner was part of the U.S. government. These petitions, similar to the Smithsonian petitions, would not contribute to an analysis of the public's use of the ESA. In total, we analyzed 101 petitions and excluded all others due to government involvement.

Since the data for number of species per petition did not fit the assumptions of normality regardless of data transformations, we conducted a nonparametric analysis of variance (ANOVA) on the ranked data (Neter et al. 1996). If the ANOVA was significant, we used a least squared difference test for direct comparisons between groups to correct for multiple tests (SAS Institute, Inc. 1999). All questions examining distributions of species and taxa were tested for significance by using a *G*-test (Sokal and Rohlf 1995) against a null hypothesis of equal distribution among categories. All analyses examining questions 1 through 3 were performed on a by petition basis. The analysis to examine eventual fate of a species (i.e., question 4) was conducted on a species level and included 118 species proposed for listing under the

petitions analyzed earlier. Taxa were divided into two distinct categories, vertebrate and invertebrate species. Since plants are not afforded protection on private land and minimal protection in general under the ESA, they were excluded from these analyses. Additionally, the ONRC's multispecies petition for 83 molluscs that occur within the habitat of the spotted owl was excluded from the analysis since the impact of this petition would unfairly bias the results in favor of invertebrates.

## Findings

First, we examined whether the number of species per petition differs by geographic area (i.e., county, within-state, or multistate). There is no difference in the number of species per petition given the geographic area when taking into account either all petitions ( $p = .18$ ,  $F = 1.73$ ,  $df = 2,98$ ) or only multispecies petitions ( $p = .15$ ,  $F = 2.07$ ,  $df = 2,18$ ). If we examined whether a particular organizational group (e.g., local groups—see Methods) placed more species on petition than other groups, we also found no significant difference when analyzing all petitions ( $p = .62$ ,  $F = 0.47$ ,  $df = 2,98$ ). However, there was a significant difference ( $p < .005$ ,  $F = 7.36$ ,  $df = 2,18$ ) if we only examined the multispecies petitions. Regional groups tended to try to list more species per multispecies petition than either national or local groups ( $p < .05$ ).

Did different groups focus on different geographic areas (Table 1)? Local groups focused their efforts on species that occur either within counties or within a single state. National groups, on the other hand, concentrated their efforts on petitioning for species whose habitat occurs within a state and across state borders. Regional groups evenly distributed their petitioning efforts. Across habitat areas, 62% of the invertebrate species occurred within countywide areas and no invertebrates were petitioned for listing across states whereas 88% of vertebrate petitions occurred within state and multi-state areas. Thus, it can be concluded that local groups attempt to list species that occur with a smaller area while national groups seek to list species that occur over large areas ( $p < .05$ ,  $G = 10.50$ ,  $df = 4$ ,  $n = 101$ ).

Whether a species was proposed for listing using a single species or a multiple species petition did not affect its eventual listing status ( $p = .80$ ,  $G = 0.45$ ,  $df = 2$ ,  $n = 118$ ). Were certain groups able to more effectively petition for the listing of species or certain taxa more likely to be listed than others? National groups were more successful at listing species than either regional or local groups ( $p < .005$ ,  $G = 15.30$ ,  $df = 4$ ,  $n = 118$ ). In fact, national groups successfully listed 50% of the 12 nonplant species for which they petitioned compared to local and regional groups

**TABLE 1** Counts (Percentage of Petitions within Each Listing Area) of the Number of Petitions by Organization and Proposed Listing Area Size

Proposed listing area	Petitioning organization's jurisdiction		
	National	Regional	Local
County	1 (6.2)	14 (42.4)	22 (42.3)
Within-state	10 (62.5)	10 (30.3)	20 (38.5)
Multistate	5 (31.3)	9 (27.3)	10 (19.2)
Total	16 (100.0)	33 (100.0)	52 (100.0)

**TABLE 2** Counts (Percentage of Petitions Within Each Listing Area) of the Number of Petitioned Species by Organization Size and Taxa Classification for Animal Species

Taxa classification	Petitioning organization's jurisdiction		
	National	Regional	Local
Invertebrates	1 (8.3)	11 (21.1)	34 (63.0)
Vertebrates	11 (91.7)	41 (78.9)	20 (37.0)
Total	12 (100.0)	52 (100.0)	54 (100.0)

that successfully listed 20% and 6% of the 54 and 52 species for which they, respectively, petitioned. This may be due to taxa bias since local and regional groups attempted to list more invertebrate species or “noncharismatic microfauna” than national groups (Table 2) ( $p = < .0001$ ,  $G = 26.07$ ,  $df = 2$ ,  $n = 118$ ). Yet, the taxon to which a species belongs did not influence whether the species would be listed or not ( $p = .84$ ,  $G = 0.34$ ,  $df = 2$ ,  $n = 118$ ).

## Discussion and Conclusions

Although we did not directly assess the motivations of environmental groups that petition for listing of threatened and endangered species, we did find support for the assertion that environmental groups appear to be using the ESA to protect specific species and not to protect areas of land under the guise of species preservation. Seventy-nine percent of the petitions that we examined were for single species and most of the multispecies petitions contained fewer than four or five species per petition. However, there were some petitions that contained an overwhelming number of species and these petitioners may be using the act to enhance habitat protection.

An example of the strategy comes from one of the listing petitions we examined. In 1993 the Oregon Natural Resources Council (ONRC) (Frest and Johannes 1993) proposed listing 83 mollusc species “within the range of the northern spotted owl.” By proposing such a large number of species within a hotly contested area, it can reasonably be supposed that the ONRC was using the ESA to solidify institutional protection of the northwestern forests. The use of species to assure protection of vast areas of land has been used before to protect the old-growth forests of the Pacific Northwest (Niemi et al. 2000). In the instance just described, the ONRC appears to be using a “shotgun” approach of proposing a large number of species in a particular habitat. If one or more of the petitioned species are listed then the habitat is effectively protected. In turn, if most of these species are listed this may provide even tighter protection under increasing development pressures. Yet these examples are few and far between and appear to be contained within multiple species petitions from groups concerned with regional issues.

However, under the ESA, even listing a single species can effectively protect an entire area against development. For instance, under the “take” provisions of the ESA, the listing of one endangered species effectively ties up the habitat of that species. For example, species that occur on San Bruno Mountain in northern California have not been listed due to the fact that a single species, the Mission Blue butterfly, and its associated Habitat Conservation Plan effectively secure the land due to its overlap in habitat requirements with other “proposed” species of concern.

The general argument used is that if the Mission Blue's habitat overlaps with another species then the listing of other species would be redundant and serve no purpose (Rogers 1997). Cynically, even if the majority of the single-species petitions were written to protect habitat, the species biology still must be reasonably well known in order for a listing to occur. Thus, in spite of a possible desire to protect habitat, species protection still results from possible alternative motives and species protection is preserved as the main goal of the ESA, regardless of the motivation of the petitioners.

Overall, the main difference between petitions from national, regional, or local groups is contained within the type of species and the area of habitat covered by the petitions. This may be due to the differences in group familiarity with species. Local groups may simply attempt to list invertebrate species within a particular area due to their awareness of local biology, whereas national groups tend to be involved in listing vertebrate species whose habitat contains geographic ranges similar to their group's focus. Thus, each group appears to be filling a needed niche in order to assure that different taxa are eventually protected under the ESA.

Once species are placed on a petition, they meet the same fate of either being listed or not regardless of type of petition (i.e., multispecies or single-species) or the species' taxon. This indicates that the U.S. FWS and NMFS do not bias the listing of petitioned species based on the petition type and whether the species is "charismatic megafauna" or "non-charismatic microfauna." However, species that are petitioned for listing by national groups have a greater likelihood of being placed on the endangered species list than those proposed by either local or regional groups. This may be due to a number of factors. National groups may only attempt to list species whose biology is well known and thus have a greater probability of being listed. They may also be more adept at handling the political process that occurs after the petition has been submitted such as organizing scientists or citizen groups to speak out during the prerequisite comment period. The only way to understand the possible difference between the effectiveness of national groups is to conduct a more in-depth analysis of the prelisting process.

In conclusion, both the public and scientists have called for a number of additional revisions to be written into the ESA. These measures include insurances built into the act for protecting overall biodiversity or for simply protecting portions of the landscape (Eldredge 1991; Grumbine 1994; Rolf 1994; Carroll et al. 1996; Plater 1997). Some individuals have suggested adopting habitat-based conservation strategies within the framework of a Regional Ecosystems Act, which could be modeled on The Nature Conservancy's Natural Heritage program, and would be separate from the ESA (Doremus 1991; Spitzberg 1994). Still others have sought to weaken portions of the act, for instance, by requiring scientific peer reviewed information be contained in the petition before accepting a petition (Young 2000), requiring an economic impact analysis be conducted prior to any potential listing decision (Thomas 1999), or, under a proposal by the current administration, allowing only government agencies to petition for the listing of species (Reid 2001). Even though some have called for the expansion of the ESA's provisions (e.g., Grumbine 1994; Carroll et al. 1996) and some for the weakening of certain provisions due to the act's potential misuse (Thomas 1999; Young 2000; Martin 2001), petitioners appear to be using the ESA to protect endangered and threatened species whether they occur locally or nationally. The fact that species, regardless of taxa, are being petitioned for by various but geographically different political entities represents the successful use and design of an important and controversial act. However, once species have been petitioned for listing, there

appears to be an incongruity between the effectiveness of different political organizations in eventually seeing the species through to actual listing. Why this occurs and if it occurs due to differences in political willpower and knowledge may actually represent a failing due to improper implementation of the current statute.

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