

**Testimony of Professor Eric Biber, University of California, Berkeley,
School of Law
Before the U.S. House of Representatives, Committee on Natural Resources,
Subcommittee on Federal Lands
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Hearing on Discussion Draft on Forest Resilience**

Good afternoon Chairman McClintock, Ranking Member Tsongas, and Members of the Subcommittee. Thank you for the opportunity to testify on the Forest Resilience Discussion Draft before the Subcommittee. It is an honor to appear here today. I am a Professor of Law at the University of California, Berkeley. As a professor at one of the leading public research universities in the country, I consider it a professional duty to assist our elected public officials as they seek to resolve many of the serious environmental challenges we face in this country.

I want to address three key principles that are fundamental to successfully addressing our environmental challenges: (1) the central role that public participation can play in improving environmental and natural resources decisionmaking; (2) the necessity of drawing on the most up-to-date scientific information when setting environmental and natural resources policy; and, (3) the importance of the courts in holding agencies accountable to their missions of faithfully implementing the laws that Congress passes. I believe that the Discussion Draft before the Subcommittee fails to satisfy any of these key principles, and accordingly I respectfully urge the Subcommittee to start anew as it seeks to address the serious challenges that we face on our National Forests.

In my testimony, I will draw on the peer-reviewed scholarship that I have undertaken with collaborators from a wide range of natural and social science disciplines – ecology, entomology, and geography. That scholarship helps illuminate the importance of the principles I outlined above. I will also provide specific examples of how the proposed Discussion Draft is inconsistent with those principles, and is likely to lead to worse outcomes in terms of environmental performance on our National Forests.

I have attached a short bibliography summarizing the work that I have done that is most relevant to my testimony today, as well as a pdf copy of the article in *Science* that I draw on in this testimony.

I. The Role of Public Participation in Improving Agency Decisions

Much of the recent rhetoric over the role of public participation in Forest Service decisionmaking frames public participation as an obstacle that interferes with the ability of the agency to implement management actions on the ground. Public participation in agency decisionmaking – through National Environmental Policy Act (NEPA) reviews, comments on proposed forest plans, administrative appeals, and so on – is characterized as part of a “process predicament” that consumes agency resources and delays important project implementation, without any tangible benefit to the agency.

What is missing from this narrative is a key reason why we have public participation in agency decisionmaking, and why statutes such as NEPA were enacted in the first place: Public participation can bring important information to the attention of the agency, making agency decisionmaking better.

Scholarship that I have worked on provides an important example of how public participation can help agency decisionmaking. Under the Endangered Species Act (ESA), citizens can petition the agencies that implement the law to list species for protection. If the agencies do not respond to those petitions within a certain time frame, citizens can sue the agencies to force a decision on those petitions. The listing petition and litigation processes has been the subject of a great deal of controversy, with claims that they have produced worse listing decisions.

Together with an ecologist, I sought to determine whether listing petitions do, in fact, result in worse agency decisions. We compared the species that had been listed for protection under the ESA as a result of a listing petition or litigation by citizen groups with species that were listed on the initiative of the agencies without a petition or litigation. The metric we used for our comparison was the degree of threat that the species faces – under the ESA, this is supposed to be the only factor relevant for a listing decision. What we found is that species listed pursuant to a petition or litigation faced greater threats than species listed on the initiative of the agency.¹

Our results speak to the powerful benefits for implementation of an environmental law that public participation can provide. Cutting public participation short does not just harm efforts to build collaborative decisionmaking frameworks across all stakeholders in our National Forests – though it surely does that. It also may result in worse decisionmaking by the Forest Service as it is deprived of important insights and perspectives from outside the agency.

The Discussion Draft, however, cuts public participation short in a wide range of situations. Categorical exclusions under NEPA eliminate an important opportunity for the public to participate in the agency decisionmaking process. Section 103 would create a categorical exclusion for forest management activities in a wide range of circumstances, including insect or disease infestations or hazardous fuel loads, for projects that could extend up to 15,000 acres. This is a five-fold increase from the categorical exemption for these projects created in the 2014 Farm Bill, without the protections for old growth forests and the sound science mandate that that categorical exemption included.

Section 104 would create a categorical exclusion for salvage operations after wildfire in areas up to 5,000 acres. This is twenty times larger than the current 250-acre limitation for salvage logging categorical exclusions. While this categorical exclusion does purport to restrict permanent road construction and provide a buffer for streams, the latter protection can be waived by the agency.

¹ Berry J. Brosi and Eric G.N. Biber, Citizen Involvement in the U.S. Endangered Species Act, 337 *Science* 802 (2012).

Section 105 would create a categorical exclusion for the creation of “early successional forests.” The categorical exclusion can be invoked for projects that have a wildlife improvement purpose, and for “other purposes.” This is in essence a blank check for even-aged forest management such as clear cuts on our National Forests with highly limited or no public participation under NEPA. This is directly contrary to current Forest Service NEPA policy. Conceivably, this categorical exemption could authorize eight-square-mile clearcuts.

Some of these provisions do provide incentives for collaboration on the ground – an important form of public participation that can improve decisionmaking. For instance, Section 103 increases the ceiling for categorical exclusions based on collaborative projects. However, in so doing, as noted above the Discussion Draft waives restrictions for old-growth forests and the mandate to rely on sound science. And notably, Section 105, perhaps the broadest categorical exclusion, has no requirement or incentive for collaboration, and indeed could eliminate any opportunity for public participation at all.

Public participation can help improve on-the-ground decisionmaking by agencies. But the Discussion Draft appears to believe public participation is a problem to be solved, not a resource to build upon. This approach is all the more unfortunate because the Forest Service already has substantial authorities to use categorical exclusions for forest management practices, authorities established through the Healthy Forests Restoration Act and expanded upon in the 2014 Farm Bill.

Indeed, as the agency has repeatedly indicated in testimony here, the challenges it faces are not related to too much public participation, but a failure of Congress to provide the agency with adequate funds to deal with the daunting challenges it faces to restore health to our National Forests. As both the Government Accountability Office (GAO) and minority staff of this Subcommittee have noted, only a small fraction of Forest Service projects are challenged administratively. For instance, in 2010 GAO found that only about 18 percent of all appealable Forest Service fuel reduction activities in 2006 to 2008 were actually administratively appealed. These numbers are even lower today, with fewer than 5% of appealable hazardous fuels projects being appealed between 2009 and 2011. The central problem with forest management today is not public participation, it is money.

II. Ensuring that Forest Legislation Draws on the Most Up-to-Date Science

To be successful, forest protection and management must draw on the most up-to-date research on forests, wildlife, fire, water quality, and other important resources. Unfortunately, similar to other forest legislation considered and enacted by Congress in recent history, the Discussion Draft seems divorced from the most up-to-date science.

Let me give an example that is particularly relevant for the Discussion Draft. Elected officials have repeatedly argued that the Forest Service and other land management agencies require greater discretion to control insect infestations such as the

mountain pine beetle. Specifically, there have been proposals that public participation, judicial review, and substantive protections under environmental laws such as the Endangered Species Act have to be reduced or eliminated to facilitate greater use of timber harvests to control insect infestations.

Together with one of the leading scientists studying mountain pine beetle infestations, we explored the extent to which the relevant science supports these proposals. What we found was that there was little evidence in the scientific literature to support the proposition that timber harvests can control mountain pine beetle infestations. Indeed, it is possible that timber harvests might, in the long run, retard the ability of our forests to respond to increased mountain pine beetle infestations in the future, something that is highly likely given climate change.²

Yet nonetheless, Congress has passed multiple laws facilitating timber harvesting to control insect infestations such as the Healthy Forests Restoration Act (HFRA) and most recently the 2014 Farm Bill. The Discussion Draft similarly places a heavy emphasis on the use of timber harvests to control insect infestations, and seeks to reduce public participation requirements and judicial review of those projects. For instance, as noted above Section 103 creates a categorical exclusion for “forest management activity,” including timber harvests, “to address an insect or disease infestation.”

There are other ways in which the Discussion Draft seems to exclude the most up-to-date science from forest protection and management decisions. The Discussion Draft defines a collaborative process as a process as described in Section 603(b)(1)(C) of the HFRA. The Draft then gives significant benefits to projects that build out of this collaborative process: Such projects under Section 102 receive streamlined alternatives analysis for environmental assessments and environmental impact statements under NEPA. Categorical exclusions under Section 103 can include up to 15,000 acres for collaborative projects. Under Title III of the Discussion Draft, litigants challenging these projects must place a bond covering all of the litigation expenses of the government, and will not be able to receive attorneys fees under the Equal Access to Justice Act (EAJA) even if successful in their challenge.

Yet the definition of a collaborative process in the Discussion Draft strangely excludes subparagraphs (A) and (B) of Section 603(b)(1) of HFRA. Subparagraph (A) requires projects to “maximize[] the retention of old-growth and large trees.” Subparagraph (B) requires the projects to “consider[] the best available scientific information to maintain or restore the ecological integrity, including maintaining or restoring structure, function, composition, and connectivity.” In other words, in order to gain the substantial benefits available under the Discussion Draft for collaborative projects, those projects need not consider the best available science.

² Diana L. Six, Eric Biber and Elisabeth Long, Management for Mountain Pine Beetle Outbreak Suppression: Does Relevant Science Support Current Policy? *5 Forests* 103 (2014).

Overall the Discussion Draft displays a troubling disregard for considering the relevant, up-to-date science. It appears to take the perspective that we must do something, anything, to facilitate timber harvesting on our National Forests, and up-to-date science cannot be allowed to get in the way of those efforts.

III. Importance of Courts and Judicial Review In Holding Agencies Accountable to Their Statutory Mandates

It is a fundamental principle of American law and our system of separation of powers that citizens can turn to the courts in order to hold our government accountable to the people that it serves. This principle was the basis of the enactment of bedrock principles of administrative law such as the Administrative Procedure Act of 1946.

Holding agencies accountable ensures that agencies comply with their statutory mandates as enacted by the elected members of Congress. Making access to the courthouse more difficult or more risky undermines this bedrock legal principle.

There are additional benefits of holding agencies accountable through judicial review. The possibility of judicial review helps ensure that agencies will seriously consider the information provided by the public through public participation opportunities such as notice and comment rulemaking, or petitions for agency action. Indeed, if agencies could simply disregard at will the information the public provided to them, citizens would quickly lose any interest in collecting and providing that information to agencies.

Thus, when we studied the role of litigation in forcing agencies to make decisions about the listing of species for protection under the ESA, we found that species that had been the subject of litigation were more threatened than species that had not been litigated.³ In another study I conducted with a geographer, we reviewed the history of monitoring of rangeland conditions on a National Forest in the Southwestern United States. Formal, regular monitoring was phased out by the agency on this National Forest in the late 1970s; it restarted in the 1990s in response to ESA litigation by environmental groups.⁴ In other words, better information about environmental conditions was prompted by litigation to hold the agency accountable to its statutory mandates under environmental laws.

Yet the Discussion Draft treats judicial review of agency decisions as an annoyance to be minimized. Section 204 prohibits preliminary injunctions with respect to certain reforestation activities. Section 302 would require plaintiffs challenging certain forest management projects to post a bond equivalent to the litigation expenses of the

³ Berry J. Brosi and Eric G.N. Biber, Citizen Involvement in the U.S. Endangered Species Act, 337 *Science* 802 (2012).

⁴ Nathan F. Sayre, Eric Biber, and Greta Marchesi, Social and Legal Effects on Monitoring and Adaptive Management: A Case Study of National Forest Grazing Allotments, 1927-2007, 26 *Society and Natural Resources* 86 (2013).

government in defending the lawsuit. These plaintiffs would only receive their bond if they prevailed “on all causes of action in all actions brought by the plaintiff.” Section 302(e) would prohibit payments under EAJA to successful plaintiffs challenging these forest management projects.

The net result of these provisions is clearly intended to deter litigation to challenge a wide range of forest management activities. Section 302 is particularly radical. It would turn on its head the traditional American rule that the parties to litigation (win or lose) cover their own costs – instead, it would require the losing plaintiff to pay the expenses of the winning government. Indeed, the plaintiff must pay the government’s costs even if the plaintiff won on all but one of the plaintiff’s causes of action. This is a dramatic departure from the traditional practice of American law.

Indeed, to the extent that the Discussion Draft is intended to model the traditional English rule (in which the loser pays the winner’s costs), the proposal is even more extreme. Even if a plaintiff succeed in a lawsuit, he or she would not receive payments from the losing side (the government), as they normally would under both the traditional English rule and under EAJA.

It is true that EAJA does provide an asymmetric loser pays principle, where the government pays the costs of certain successful plaintiffs, but plaintiffs are not liable for the costs of the government if the government wins. But this arrangement is consistent with the notion that the courts are open to citizens seeking to hold the government accountable. Moreover, there is no comparison between the resources available to the federal government and the resources available to even the most well-resourced private plaintiff (whether environmental or industry) challenging a government decision.

These efforts to constrain judicial review are particularly problematic because only a small fraction of Forest Service projects are challenged in court. The Government Accountability Office in 2010 analyzed the data on how many Forest Service projects were litigated and found that only two percent of all decisions were litigated.

Conclusion

I encourage the Subcommittee to start afresh with its efforts to advance forest resilience on our National Forests. As I noted at the beginning of this statement, an excellent place to start would be to provide additional resources for the Forest Service to take advantage of the tools already available to it under existing law. Another important step would be to end the practice by which emergency fire suppression expenditures by the Forest Service are covered out of its regular appropriations, interfering with ongoing and important restoration projects. These are the steps the Subcommittee should pursue, rather than misguided efforts to curtail public participation, disregard the most up-to-date science, and limit judicial review.

Brief Summaries of Relevant Scholarship
by Eric Biber

The Wilderness Act and Climate Change Adaptation, 44 Environmental Law 623 (2014) (with Elisabeth Long).

There have been frequent claims that the Wilderness Act overly constrains the ability of federal land management agencies to respond to the impacts of climate change on the forest, wildlife, water, and other resources on federal lands, and that greater flexibility is required for those agencies to undertake the management needed to protect resources in a changing climate. We reviewed the range of management techniques proposed for climate change in montane forest ecosystems in the Western United States (the most common ecosystem in wilderness areas). We then analyzed the statutory text and the caselaw and agency policies interpreting the text of the Wilderness Act. We conclude that the Act gives land management agencies ample flexibility to pursue the wide range of management options to facilitate climate change adaptation. To the extent the Act favors passive management tools, this is consistent with what the literature suggests should be the primary approach for adaptation in wilderness lands.

Management for mountain pine beetle outbreak suppression: Does relevant science support current policy? 5 Forests 103-33 (2014) (with Diana Six and Elisabeth Long).

Dozens of federal bills have been proposed on the grounds that landscape-level logging treatments are needed on public lands to respond to the increasing number of forest insect infestations. Some of these bills have been enacted. We reviewed the scientific literature that has assessed whether logging and other active management techniques are effective in controlling outbreaks of mountain pine beetles, one of the most significant insects in Western forests. We conclude that the literature does not establish that logging is an effective management technique to suppress or control infestations, and in fact logging may be counter-productive by preventing long-term adaptation by forests to a future with more intensive beetle outbreaks.

The Challenge of Collecting and Using Environmental Monitoring Data, 18 Ecology & Society 68 (2013).

The Problem of Environmental Monitoring, 83 Univ. Colo. L. Rev. 1 (2011).

Monitoring data is central to effective environmental and natural resources management, and is an integral part of adaptive management, which is the tool

that scholars and managers assert is essential to future management success. However, the track record of collection of effective monitoring data by environmental agencies is spotty at best, and even when it is collected, often monitoring data is not used to influence decisions. In these two articles, I examined the legal, political, and bureaucratic obstacles to the collection and use of effective environmental monitoring data. I recommend that agencies or legislatures consider the creation of separate monitoring agencies to increase the likelihood of the collection of effective monitoring data, and that clear and specific triggers be used which ensure that if certain standards are met by the monitoring data, management decisions will automatically follow.

Social and Legal Effects on Monitoring and Adaptive Management: A Case Study of National Forest Grazing Allotments, 1927-2007, 26 *Society & Natural Resources* 86 (2013) (with Nathan Sayre and Greta Marchesi).

We examined the history of monitoring of rangeland conditions on grazing allotments on a National Forest in the Southwestern United States. We found that formal, regular, quantitative grazing monitoring was phased out in the late 1970s, and wasn't restarted until the 1990s. We identify litigation in the 1990s as a key factor in triggering the resumption of monitoring by the Forest Service.

Citizen Involvement in the U.S. Endangered Species Act, 337 *Science* 802 (2012) (with Berry Brosi).

Officious Intermeddlers or Citizen Experts? Petitions and Public Production of Information in Environmental Law, 58 *UCLA L. Rev.* 321 (2010) (with Berry Brosi).

Citizens can petition to list species for protection under the Endangered Species Act (ESA). If the regulatory agencies do not respond to those petitions in a certain time frame, citizens can sue to force a decision on the petitions. Critics allege that petitions and litigation divert agency attention from the species most at risk, as determined by the expert regulatory agencies, to those species that are popular among environmental groups seeking to stop development projects. We compared species listed as a result of a petition or litigation with species that were listed on the initiative of the regulatory agencies. We found petitioned or litigated species to be more endangered than species listed on the initiative of the regulatory agencies. Our results point to the importance of public participation in bringing expert information to the attention of agency decisionmakers.

CONSERVATION

Citizen Involvement in the U.S. Endangered Species Act

Berry J. Brosi^{1*} and Eric G. N. Biber²

The U.S. Endangered Species Act (ESA) has been controversial since it became law nearly 40 years ago. One of its most-debated provisions is citizen involvement in selecting species that become formally protected under the law (“listing”). Citizens can petition the U.S. Fish and Wildlife Service (FWS) to list any unprotected species and can independently use litigation to challenge any FWS listing decision (1, 2). Some contend that these provisions interfere with the ability of FWS to prioritize scarce resources for species that most need protection (e.g., 3, 4).

Critics charge that most citizen-initiated listings are driven primarily by political motives, particularly to block development projects (5). A related argument is that citizens initiate listing of more subspecies and populations (as opposed to full species) (6), again out of political convenience (5, 7, 8). If such claims are true, citizen involvement may undermine the sole legislative criterion for listing; the ESA stipulates that species should be listed on the basis of biological threat alone, without regard to conflict with development (1). Such criticisms underlie, in part, a 2011 request by FWS to Congress to impose a cap on the amount of money that FWS could spend responding to citizen requests (9).

Although controversy surrounding citizen involvement in ESA listing is longstanding, there has not been an objective analysis comparing species listed by FWS of its own accord to those listed after petition or lawsuit by citizen actors (1). Biological threat provides a test for citizen involvement: If petitioned and litigated species are less biologically threatened, on average, than species selected by FWS, that would provide an argument for reducing citizen involvement in the ESA. Such an argument would be strengthened if citizen groups disproportionately focus on species whose selection might have been based on reasons other than threat, i.e., species that are in conflict with development



The Desert Tortoise (*Gopherus agassizii*). The Mojave Desert population of the Desert Tortoise was petitioned to be listed, but was originally not listed by FWS. The species was listed by FWS after subsequent litigation.

(5), or at “lower” taxonomic levels (subspecies or populations; (10, 11). By contrast, if nongovernmental actors are equally as good as (or better than) FWS at selecting species that are biologically threatened, that would provide an argument for maintaining citizen involvement provisions in the ESA.

Although proposals to constrain citizen petitions in 2001 and 2011 failed in Congress (3, 9), similar proposals are likely to return. To inform this debate, we conducted the first empirical analysis of ESA-listed species that compares FWS-initiated species with species whose listing process was initiated by citizen petition or involved litigation. We asked three sets of questions: (i) Do FWS-initiated species face greater biological threats than citizen-initiated species? (ii) Do citizen-initiated species show signs consistent with what critics deem politically-motivated listing: (a) more conflict with development than FWS-initiated species; and (b) a greater proportion of subspecies or populations as opposed to “full” species compared with FWS-initiated species? (iii) What is the relation between biological threat and both conflict with development and taxonomic status?

Methods

We built a database of domestic terrestrial and freshwater species listed as “threatened” or “endangered” under the ESA (12, 13). Our response variables come from FWS’s recovery priority score, which includes three components: (i) biological threat of extinction; (ii)

Data on listed species refute critiques of citizen involvement in the U.S. Endangered Species Act.

taxonomic level, i.e., full species versus subspecies (including Distinct Population Segments and Evolutionarily Significant Units); and (iii) conflict with economic development (13). We used FWS data from the first recovery report published after each species listing, up until 4 years later; this limits our analysis to species listed from 1986 on. There are 913 species in this data set (14). We only included petitions or litigation whose goal was to list a species (i.e., we did not include lawsuits aimed at delisting species). We validated FWS threat scores with data from a nonprofit conservation organization and used logistic and ordinal logistic regression models. We only included species that were successfully listed under the Act because only these species have recovery priority scores. Exclusion of petitioned species that were never listed under the ESA creates a possible selection bias. To address that possibility, we examined the proportions of petitioned species and FWS candidate species that were actually listed for protection under the ESA (12).

Results

Citizen-initiated species (petitioned and/or litigated) face higher levels of biological threat than species identified by FWS ($P = 0.0005$) (see the figure) (Fig. 1) (table S1). Litigated species are more threatened than nonlitigated species ($P = 0.0027$); we found no significant difference in threat between petitioned and non-petition-initiated species ($P = 0.0930$) (table S1) (15). Citizen-initiated species are more likely to be in conflict with development ($P = 0.0012$) and include a greater proportion of subspecies ($P = 0.0053$) (see the figure) compared with FWS-selected species. This pattern holds in terms of conflict-with-development for petitioned species ($P < 0.0001$) but not for litigated species ($P = 0.1914$). Petitioned species are significantly more likely to be subspecies than non-petition-initiated species ($P = 0.0006$); litigated species are marginally so, compared with nonlitigated species ($P = 0.0567$).

Across all listed taxa (regardless of selection by citizens or FWS), species in conflict with development face greater biological threat levels than species not in conflict with development ($P < 0.0001$) (fig. S1). There is

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no such pattern for taxonomic level: Subspecies and species face relatively similar threats ($P = 0.481$). Of species in conflict with development, citizen-initiated taxa have greater threat levels than FWS-initiated taxa ($P = 0.046$) (see the graph); citizen-initiated subspecies are marginally more threatened than FWS-initiated subspecies ($P = 0.077$) (table S1). Within conflict-with-development and taxonomic-level groups, 11 of 12 comparisons trend toward greater threat for citizen-initiated taxa; 5 show significantly greater threat for citizen-initiated species (table S2).

In terms of the proportion of species that are eventually listed by FWS, we found no evidence of a selection bias in favor of petitioned species compared with non-petition-initiated species. Although we could not conduct statistical tests because of differences in data collection, a higher proportion of petitioned species are eventually listed, compared with species on the FWS candidate list (12). We also found no evidence of systematic divergence between threat scores for FWS and nongovernmental organizations.

Discussion

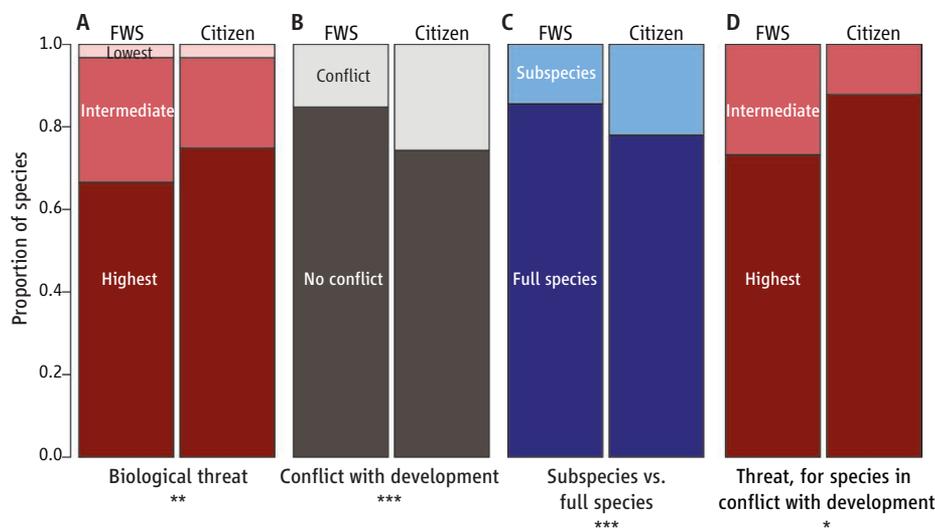
Citizen groups play a valuable role in identifying at-risk species for listing under the ESA. Indeed, citizen-initiated species are overall more biologically threatened than those selected by the FWS. Our findings thus do not support calls for reducing or eliminating citizen involvement in the ESA.

Our results are consistent with potential political motivation (as defined by critics) in species petitions and litigation. First, citizen-initiated species as a whole, and petitioned

species in particular, are more likely to pose conflicts with development relative to FWS-selected species. Second, citizen groups disproportionately propose subspecies, as opposed to full species, for protection under the ESA relative to FWS.

However, even if citizen groups act strategically in their listing proposals, this does not result in listing of species that are less deserving of protection. Petitioned species face levels of threat similar to those of non-petition-initiated species; litigated species face even greater threats than nonlitigated species. Among species in conflict with development, citizen-initiated species are significantly more threatened than FWS-initiated species. Among subspecies, the marginally significant result indicates that citizen-initiated subspecies are at least as threatened as FWS-initiated subspecies, if not more so.

Contrary to criticisms of citizen involvement in the ESA, petitions and litigation are potentially very important in selecting species worthy of protection (16). In many cases, outside groups could serve as the only impetus for protection of biologically threatened taxa that would otherwise be ignored because they conflict with development projects and related political pressures or because they are low-profile subspecies. This function is particularly important because across both FWS- and citizen-initiated taxa, species in conflict with development face significantly greater biological threat levels than species not in conflict with development. This is understandable given that human development projects are one of the largest threats to biodiversity (17).



Comparisons of species selected by FWS versus citizens in terms of (A) biological threat, (B) conflict with development, (C) taxonomic level, and (D) biological threat for species in conflict with development. Results from ordinal logistic (first and last bar pairs) and logistic (second and third bar pairs) regressions; * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Citizen actors—including numerous scientists—have specialized knowledge about biological taxa and geographic locales (16). FWS is limited in its budget, staff size, and scope and is unlikely to ever contain enough expertise to identify all species most worthy of protection among the more than 100,000 plant and animal species in the United States, not including subspecies (18). There are structural barriers to listing of taxa that are not truly threatened. Because petitions and lawsuits are time-consuming and expensive relative to the limited resources of many citizen groups, such groups are unlikely to invest time and money in species that probably will not meet the criteria for formal listing by the ESA.

Calls to streamline the ESA and to rely exclusively on FWS to identify and list species might mean that a significant number of species that deserve legal protection—especially those that are politically unpopular because of the potential to obstruct development projects—would be left out in the cold.

References and Notes

1. ESA 16 USC §§ 1533.
2. ESA 16 USC §§ 1539.
3. J. Pattis, *Tulane Environ. Law J.* **16**, 257 (2003).
4. M. Restani, J. M. Marzluff, *Bioscience* **52**, 169 (2002).
5. I. C. Sugg, *Cumberland Law Rev.* **24**, 1 (1993).
6. The listing of subspecies and populations as endangered or threatened is allowed under the ESA (19).
7. There are biologically important reasons for protecting subspecies and populations; see, e.g., (8).
8. G. Ceballos, P. R. Ehrlich, *Science* **296**, 904 (2002).
9. L. Hurley, *E&E Publishing*, 23 March 2011; <http://www.eenews.net/public/Greenwire/2011/03/23/2>.
10. D. Holthouse, *Denver Westword News*, 20 January 2005; www.westword.com/2005-01-20/news/building-abetter-mousetrap.
11. M. A. Cronin, *Range Magazine* **2006**, 14 (2006).
12. Supplementary Materials are available on Science Online.
13. FWS, *Fed. Regist.* **48**, 43098 (1983).
14. We did not include species managed by the National Marine Fisheries Service (NMFS) because of data limitations and sample size. Including NMFS species and reanalyzing our data does not change any basic results (12).
15. Because petitions and litigations are legally independent actions, we also separately analyzed the effect of each, comparing petitioned species (P+) to unpetitioned (P-) species, and litigated (L+) to unlitigated (L-) species. The unpetitioned category includes both (P-, L+) and (P-, L-) species; the unlitigated category contains both (L-, P+) and (L-, P-) species.
16. E. Biber, B. Brosi, *UCLA Law Rev.* **58**, 321 (2010).
17. O. E. Sala et al., *Science* **287**, 1770 (2000).
18. NatureServe (NatureServe Web Service, Arlington, VA, 2012); <http://services.natureserve.org>.
19. ESA 16 USC §§ 1532.

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Supplementary Materials

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