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**“Dumb Queues and Not-So-Bright Lines:  
The Use and Abuse of Science in the Endangered Species Act”**

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## Dumb Queues and Not-So-Bright Lines *The Use and Abuse of Science in the Endangered Species Act*

*Brian F. Mannix*<sup>1</sup>

Laws written to protect health, safety, and the environment will often have a provision calling for the best available science.<sup>2</sup> This is uncontroversial; few people explicitly advocate inferior science, or unavailable science, or an altogether unscientific approach. Typically the implementation of such laws is accompanied by vehement technical and legal arguments about what, exactly, the best available science tells us; and reform proposals abound, from all sides, for improving science still more. But this can be a red herring. The greater difficulty lies not in improving science but in figuring out how to apply science in the service of the statutory objective. Laws are not scientific instruments or studies; rather, they govern the behavior of humans by setting forth rules, penalties, rights, and instructions to agencies. Which rules will produce what results? It is not an easy question, even if we have a good idea of what results we desire and what the applicable science is.

The Endangered Species Act (ESA), as interpreted by the federal courts and the agencies that implement it, has without question caused dramatic changes in human behavior. Some of these changes have helped protect particular species or biodiversity in general. Some of them have actually been counterproductive.<sup>3</sup> But both its biological successes and its biological failures appear to be second-order effects; the primary effect of the ESA has been controversy, litigation, large and arbitrarily distributed economic losses, and staggering administrative inefficiency.

It would not be fair to attribute this dismal record to the state of ecological science; nor would proposals for improving the science be likely to effect a significantly different outcome. Rather, the problem lies in the way the ESA applies science to administrative decisions, and only a fundamental change in the law will allow agencies to deliver a better record of performance.

This chapter sets out to do three things. First, it will illustrate one of the difficulties with the ESA by looking at the Environmental Protection Agency's experience with the consultation

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<sup>2</sup> These are sometimes called "science mandates." Holly Doremus and A. Dan Tarlock, *Science, Judgment, and Controversy in Natural Resource Regulation*, Paper No. 50, UC Davis Legal Studies Research Paper Series. August 2005.

<sup>3</sup> "We find some evidence that the expenditure of substantial government funds on the recovery of a species can be effective, but listing, by itself, is not effective and can even be detrimental." Paul J. Ferraro, Craig McIntosh, and Monica Ospina, "The effectiveness of the US endangered species act: An econometric analysis using matching methods," *Journal of Environmental Economics and Management* 54 (2007) 245-261. See also Joe Kerkvliet and Christian Langpap, *Learning from endangered and threatened species recovery programs: A case study using U.S. endangered species Act recovery scores*, *Ecological Economics* 63 (2007) 499-510.

process (ESA Section 7) as it applies to EPA’s pesticide registration program. This experience can help explain why both the Bush and the Obama administrations have expressed a preference for new legislation to address climate change, rather than use the Clean Air Act (CAA) and the ESA.

Second, it will point out the ways that the ESA unnecessarily entangles biological science in questions that are not at all scientific—questions about property, equity, and cost distribution.

Third, it will suggest a direction that ESA reform proposals should explore. The profound controversies surrounding this law are not a reflection of profound differences about science; neither do they reflect profound differences about the objective of preserving endangered species, which enjoys widespread support. At root, the most intractable ESA disputes reflect concerns about cost incidence and fairness. Who should pay for our ambitious biodiversity agenda? This is a political question that Congress would do well to tackle head on, rather than couple it artificially to scientific findings. In other words, politicians should not try to do the science, but neither should they impose on scientists to do the politics.

### **Hard Lessons at the EPA**

#### **FIFRA**

EPA registers pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and must review registered pesticides every 15 years to ensure that they continue to meet applicable statutory requirements.<sup>4</sup> In the course of that review, if the agency believes that the pesticide may affect endangered or threatened species or their designated critical habitat, it must consult with the Fish and Wildlife Service (USFWS) at the Department of the Interior, or with the National Marine Fisheries Service (NMFS) at the Department of Commerce (collectively, the Services), which will issue the authoritative biological opinion.<sup>5</sup>

EPA has considerable expertise on the ecological effects of pesticides; which, along with human health risks, are a central focus of its review function.<sup>6</sup> In addition to effects on listed species, the agency examines potential risks to other vulnerable species, including economically important species (both privately owned bees and wild pollinators, for example). It investigates a number of broader risks, such as the chronic exposure of aquatic species to a mixture of chemicals that are found at low levels in surface waters, and it gives priority to pest-control strategies and chemistries that will reduce overall risks to human health and the environment. EPA’s review of pesticides is not a binary yes-or-no process; in order to avoid unreasonable risks, the agency can approve a pesticide but disallow particular uses, modify application rates or

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<sup>4</sup> The Pesticide Registration Improvement Act, as amended, imposes the “registration review” requirement, which is a successor to the “reregistration” program required under an earlier statute. See [www.epa.gov/pesticides](http://www.epa.gov/pesticides) for a full description of the multifaceted pesticide program and its governing laws.

<sup>5</sup> ESA Section 7(a)(2).

<sup>6</sup> See “Overview of the Ecological Risk Assessment Process in the Office of Pesticide Programs, U.S. EPA: Endangered and Threatened Species Effects Determinations,” EPA, January 23, 2004. (<http://www.epa.gov/oppfead1/enderanger/consultation/ecorisk-overview.pdf>).

methods, or require that only a licensed applicator use the product. All of its decisions are subject to scientific peer review.

To comply with the ESA, EPA must ensure that its decisions on pesticides will not adversely modify critical habitat nor jeopardize the continued existence of listed species. The agency has expressed confidence in its own ability to render expert biological opinions. Moreover, in other contexts, the agency has enjoyed considerable deference on such matters. For example, several statutory provisions exempt certain EPA actions from review under the National Environmental Policy Act (NEPA), and courts have granted a similar exemption under a doctrine of NEPA equivalence. No other agency, including the USFWS,<sup>7</sup> has received such deference from the courts on its environmental decisions. The ESA provides no exception for EPA actions, however; and courts have found that only the designated Services (USFWS and NMFS) can render an authoritative biological opinion under the ESA. Defenders of this exclusive arrangement under Section 7 typically argue that “action agencies” may not have the resources or the expertise to render biological opinions on their own, or that action agencies may have a “development mandate” that conflicts with the ESA mandate. These arguments sound hollow when applied to EPA’s pesticide program, which exists in order to prevent harm to human health and the environment, and which has all of the requisite expertise.

The Section 7 consultation requirement has presented a serious procedural challenge for EPA. If the agency believes that a pesticide presents a threat to human health or the environment, including a threat to a listed species, it has the authority under FIFRA to take action to address the threat. It can do so at any time, regardless of the status of a pesticide’s registration review. On the other hand, to complete a pesticide registration review it must get a final, authoritative, and timely opinion from the cognizant Service that such a threat does *not* exist; and, if challenged, must get a court to accept that opinion. This is another matter entirely. Indeed, to my knowledge it has never happened. Despite many attempts to come up with a workable process, the pesticide office’s consultations with the Services typically take years, and even then do not reach a legally robust conclusion.

While the ESA sets a time limit for formal consultations, the Services generally will not begin the formal process without what they regard as a complete record (a common practice among regulators, including EPA’s pesticide office); in the absence of adequate information the Services will, with some support in the ESA legislative history, “give the benefit of the doubt to the species.”<sup>8</sup> An informal consultation process therefore precedes the formal consultation, so that all of the involved agencies are confident they have the information they need. The result is an administrative process that is protracted, but still not conclusive.<sup>9</sup>

EPA maintains active registrations for more than 1,000 active ingredients (grouped in about 675 categories) and 20,000 pesticide formulations (another 100,000 registrations are inactive). Its registration review process makes about 1,600 discrete decisions per year with

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<sup>7</sup> Charles H. Eccleston, *NEPA and Environmental Planning, Tools Techniques, and Approaches for Practitioners* (CRC Press, 2008 ), 136-137.

<sup>8</sup> Congressional Research Service, *The Endangered Species Act and “Sound Science”*, updated January 8, 2007, 20.

<sup>9</sup> One involved official summarized it as follows: “The problem with informal consultation is that it never ends; the problem with formal consultation is that it never begins.”

respect to these products, any of which, in theory, could trigger consultation with one or both of the Services on one or more listed species in one or more geographic areas.

It is not possible for EPA to solve this problem working with the Services. It has been widely reported that the process of listing endangered and threatened species, and of designating their critical habitat, has been so beset by litigation that the Services are paralyzed. Interior officials have testified:

Simply put, the listing and critical habitat program is now operated in a "first to the courthouse" mode, with each new court order or settlement taking its place at the end of an ever-lengthening line. We are no longer operating under a rational system that allows us to prioritize resources to address the most significant biological needs.<sup>10</sup>

The Section 7 consultation program has similarly been burdened by court-ordered mandates that exceed the Services' ability to keep up with demand. What is distinctive about the Section 7 consultation program is that the mandates are causing administrative gridlock not only within the Services, but also within the action agencies. From EPA's perspective, the 15-year cycle of mandatory pesticide registration reviews will provide as many as a million points of possible consultation with the Services—each, based on experience, taking as much as ten years. That is not a remotely feasible enterprise, nor is it one that promises anything tangible in the way of ecological benefit. As matters now stand, EPA biologists are unable to focus on the systematic reviews that Congress has called for because judges have set a different agenda. Agency managers describe the challenges.

Dr. Donald Brady, the acting director of the OPP's [Office of Pesticide Programs] environmental fate and effects division outlined some of the court-imposed workload on the Agency. It must examine 7-10 active ingredients every three months for the next 18 months to determine possible effects on California red-legged frogs. The EPA agreed to examine 66 pesticides over a three-year schedule under a 2006 legal settlement with the Center for Biological Diversity.

Dr. Brady acknowledged that the court-imposed emphasis on particular species in certain localities reduces the Agency's ability to conduct nationwide assessments. He is keen to move beyond the litigation and embark on much broader consultations on endangered species. Dr Brady sees the predictable work schedule of registration reviews as being the most efficient way for the EPA to meet ESA requirements. However, it remains a "daunting challenge."<sup>11</sup>

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<sup>10</sup> Testimony of Craig Manson, Assistant Secretary for Fish, Wildlife, and Parks, Department of the Interior, before the Subcommittee on Fisheries, Wildlife, and Water of the Senate Committee on Environment and Public Works, April 10, 2003. [cited by Ruhl at: <http://laws.fws.gov/TESTIMON/2003/2003april10.html> but unable to verify] The same text appears in the testimony of his successor, Julie MacDonald, eighteen months later in field hearings of the full Senate Committee on Environment and Public Works, 8/26/2004.

<sup>11</sup> Andy Beer, "US endangered species assessments challenge EPA's workload," Agrow World Crop Protection News, Friday, 18 April 2008. [<http://www.agrow.com/news215.shtml> ]

There have been a number of legislative and administrative attempts to fix this problem, none of them successful. Most recently, the Interior and Commerce Departments conducted a rulemaking in 2008 to streamline the consultation process and clarify different agencies' responsibilities. The new rule became effective on January 15, 2009, and then was promptly repealed by the incoming administration. One of the difficulties in constructing any administrative reforms is the sheer weight of litigation under the ESA. So many court opinions have interpreted the key words of the statute that there is little room left for the implementing agencies to issue any regulation that is interpretive in character. Legislative action is needed.

## **Clean Air, Endangered Species, and Climate**

EPA's experience with pesticide re-registration undoubtedly has colored its view about the likely effect of using the Clean Air Act (CAA) and the Endangered Species Act to address climate change. Both the Bush Administration and the Obama Administration have taken the position that the Congress should pass new legislation to regulate GHG emissions, and that the new law should preempt or amend the CAA. Both administrations also took the position that the listing of polar bears as threatened under the ESA required only those actions that were already underway under the Marine Mammal Protection Act.

The reason is that each law by itself is poorly suited to the climate-control mission, and together they form a toxic combination. Yet, in the absence of Congressional action, regulation by litigation will force both of these statutes to the forefront of climate policy. The Supreme Court has found that greenhouse gas emissions can be considered pollutants under the Clean Air Act<sup>12</sup> if they endanger human health or the environment, and the EPA is now in the process of making "the endangerment finding."<sup>13</sup> The regulatory regime that will emerge from this is still uncertain, but we know that it will inevitably involve a dramatic expansion in the number of permit decisions that will be required.

The CAA sets fixed thresholds for sources of pollution that require a Prevention of Significant Deterioration (PSD) permit: 100 tons annually of a single pollutant, or 250 tons of a combination. When these statutory thresholds are applied to a minor and unintentional byproduct of combustion, like carbon *monoxide*, it means that the largest facilities must have permits adjudicated by EPA. When applied to a major and necessary product of combustion, like carbon *dioxide*, the same statutory thresholds capture facilities that are two orders of magnitude smaller.

Currently, EPA estimates that EPA, state, and local permitting authorities issue approximately 200-300 PSD permits nationally each year for construction of new major sources and major modifications at existing major sources. Under existing major source thresholds, we estimate that if CO<sub>2</sub> becomes a regulated NSR pollutant (either as an individual GHG or as a group of GHGs), the number of PSD permits required to be issued each year would increase by more than a factor of 10 (i.e. more than 2000-3000 permits per year), unless action were taken to

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<sup>12</sup> *Massachusetts v. EPA*, 549 U.S. 497 (2007).

<sup>13</sup> \_\_\_FR. 2009.

limit the scope of the PSD program under one or more of the legal theories described below. The additional permits would generally be issued to smaller industrial sources, as well as large office and residential buildings, hotels, large retail establishments, and similar facilities.<sup>14</sup>

Combine (1) that dramatic expansion of the CAA's permitting domain with (2) the potential requirement to consult with (probably both) Services in each of these permitting decisions, under (3) the theory that climate change itself may present a threat to an increasing number of listed species, and (4) the argument that any greenhouse gas emission at all contributes to the overall threat, while (5) the courts have recognized no *de minimis* exemptions in the ESA. Shake well. The result is that the absurd generalization of NIMBYism, BANANA (Build Absolutely Nothing Anywhere Near Anybody), will quickly be truncated to just BAN. With global climate change, proximity ceases to be relevant.

It will do no good to argue that some endangered species, somewhere, will be helped by climate change (or by facilities that contribute to it); the ESA recognizes only harm. Neither will it help to point out that the effect of a particular facility on climate, let alone on listed species, is not detectable by any method known to science. Any individual facility emitting greenhouse gases will have an incredibly small effect on climate, but one that can be estimated and calculated, and it will not be zero.

EPA made an effort in 2008 to outline a workable regulatory system for greenhouse gases under the CAA; other agencies expressed grave reservations about it.<sup>15</sup> In any event, given the rigidity with which courts have read the CAA,<sup>16</sup> creative administrative solutions stand little chance of success, and the actual regulatory regime is more likely to emerge from future litigation than from thoughtful planning. Similarly, although DOI has attempted to circumscribe the requirements of listing of polar bears as threatened, courts have historically been unsympathetic to administrative attempts to stay the most onerous provisions of the ESA. It is unfortunate that, as Congress debates the merits of climate legislation, the existing regulatory regime will be holding the U.S. economy hostage—shackled by the combination of the CAA and the ESA.

### **What's the problem?**

Administrative controversy and litigation have placed a paralyzing burden on agencies charged with implementing the ESA. But why? Is it because the science is not up to the task? Or have we given it the wrong task?

I suspect most scientists would agree, at least in the abstract, that we have a pretty good idea of where to draw the lines between species, which species are thriving and which are in jeopardy, what the causes are, and what measures might be taken to remedy the problem.

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<sup>14</sup> EPA Advanced Notice of Proposed Rulemaking, June 17, 2008. \_\_FR\_\_.

<sup>15</sup> *Ibid.*

<sup>16</sup> See, for example, the DC Circuit Court of Appeals rulings on EPA's Clean Air Interstate Rule and its Clean Air Mercury Rule.

Disagreements would not be trivial, but they would mostly be a matter of degree. In a legal context, however, particularly the way the ESA is drafted, matters of degree become Maginot lines.

Take the definition of a species. Both the legal rule and the scientific rule are similar: roughly, distinct populations that do not interbreed. But science finds interesting exceptions, such as “ring species.” In Britain, herring gulls and lesser black-backed gulls are easily distinguished and do not interbreed. Yet the morphology of the herring gull changes gradually as one follows a line of latitude around the pole, to North America, across Asia, and back to Western Europe. By the time you arrive back at the starting point, the herring gull has changed by degrees into a lesser black-backed gull! Richard Dawkins describes the paradox:

At every stage around the ring, the birds are sufficiently similar to their immediate neighbors in the ring to interbreed with them. Until, that is, the ends of the continuum are reached, and the ring bites itself in the tail. The herring gull and the lesser black backed gull in Europe never interbreed, although they are linked by a continuous series of interbreeding colleagues all the way round the other side of the world.<sup>17</sup>

He describes another example of a ring species, a salamander, in the mountains surrounding California’s central valley. “I shall not bend over backwards to avoid using discontinuous names for species in this book. But the Salamander’s Tale explains why this is a human imposition rather than something deeply built into the natural world.”<sup>18</sup>

Fuzzy definitions do not present a problem for science, which can easily deal with genetic gradations, shifting probabilities, and more or less arbitrary classifications. They can present a serious problem for administrative law, however. It is commonplace for the law to set thresholds along a continuous spectrum: the Constitution establishes age thresholds for holding elective office; state courts routinely decide closely argued cases disputing whether a speed limit was, or was not, exceeded. Under the ESA, however, unimportant scientific distinctions become the fulcrum on which large policies—and large penalties—are made to hinge.

By “unimportant distinctions,” I mean those that would not, on their own, have important implications for conservation management in the absence of a legally-created need for different parties to advance their policy preferences by arguing about them. If three populations of rare sparrows inhabited a range that was entirely on federal land, for example, and no incompatible uses of the land were contemplated, then studying the distinctions among the three would be a relatively academic exercise. Are they three varieties or three species? Do they interbreed? Are they threatened individually? Or collectively? Scientists and managers might want to know the answers to these questions, but the answers might be ambiguous, and that might be perfectly acceptable.

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<sup>17</sup> Richard Dawkins, *The Ancestor’s Tale* (New York: Houghton Mifflin, 2004). The Salamander’s Tale, in *Rendezvous 17* (Chapter 17).

<sup>18</sup> *Ibid.*

Put one of these populations on private land, however, and all that changes. The answers to those questions might have implications for the survival of the sparrows, and will certainly have implications for the landowner. As a result, the interested parties, the agencies, and the courts will ask scientists to draw bright lines, even where bright lines do not always exist in the real world. The question of whether a population is distinct and threatened ceases to be a matter of degree, and becomes a legal finding of profound consequence. Scientists will do their best to draw bright lines but, the lines will inevitably be arbitrary. So, for example, a northern spotted owl becomes a California spotted owl—and vice versa—when it flies across the Pit River. Because they are fraught with consequences for particular parties, these determinations, however conscientiously made, will invite challenge. It should not be surprising that enormous pressure is generated when a great weight is balanced upon a small point.<sup>19</sup>

For the affected landowner, the decision to move a species from “candidate” status to “listed” status—regardless of its scientific content or its management implications—causes a sudden reordering of property rights. Any (but perhaps not quite all, given the state of takings jurisprudence) of the landowners’ property rights are suddenly subordinated to an absolute public right to protect the species. A legal regime that clearly assigned priority of rights to either party could, through Coasian bargaining, lead to an efficient outcome.<sup>20</sup> But by causing the rights to be inverted, contingent upon an arbitrary and contestable scientific finding, the ESA ensures that interested parties will have more of an incentive to argue than to bargain. The ESA’s contingent-rights regime may be less reminiscent of Coase’s world, with its rent discovery and optimization through bargaining, than of Tullock’s, where rents are dissipated through rent-seeking.<sup>21</sup>

It is not difficult to discover why the ESA assigned rights the way that it did. The applicable provision makes it unlawful to “take” an endangered organism, language that suggests the authors had a particular scenario in mind. Webster defines the verb to take as “to get possession of (as fish or game) by killing or capturing”<sup>22</sup> The connotation of the word is that the taker does not initially have a vested right to that which he is taking. A fisher does not own a fish until it is landed; a hunter in pursuit of wild game has no claim on it until he actually kills or captures, or perhaps wounds, the animal. Certainly it is well within the state’s police power to circumscribe the right to hunt wild game; and there is widespread support for listing and protecting endangered and threatened species, with the occasional exceptions of captive-bred and traditional subsistence hunting. It is, and ought to be, a crime for a hunter to knowingly kill an endangered wild animal for sport. Nor should he be compensated for the loss of the opportunity.

But the effect of the ESA’s take prohibition goes far beyond the scenario of the willful hunter. The ESA definition of take is deliberately broad to include actions that “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such

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<sup>19</sup> Katrina Wyman gives a rationale for decoupling the listing of species from the regulatory decisions about what protections to afford them. “Rethinking the ESA to reflect Human Dominion Over Nature,” *NYU Environmental Law Journal* Vol. 17, 2008, 490-527.

<sup>20</sup> See Stephen Polasky and Holly Doremus, “When the Truth Hurts: Endangered Species Policy on Private Land with Imperfect Information,” *Journal of Environmental Economics and Management*, **35**, 22-47 (1998) for a discussion of the limits of Coase’s theorem when information is incomplete.

<sup>21</sup> Gordon Tullock, \_\_.

<sup>22</sup> Merriam-Webster online dictionary, definition 1b of “take,” verb, transitive. [ [www.merriam-webster.com](http://www.merriam-webster.com) ]

conduct.”<sup>23</sup> Even that list is misleading; take also includes takes that are unknowing and indirect.

As a Virginia official I encountered a vivid example of the ESA’s broad scope when conducting a preliminary assessment of Fort Pickett, a 40,000 acre artillery training facility whose title transferred from the U.S. Army to the Virginia National Guard in 1997. A biological inventory found some listed species of opportunistic plants that thrived in disturbed soil—which the artillery range had in abundance. I asked what our obligation was under the ESA, and was told that there should not be a problem, as long as we continued to use the land as an artillery range. In other words, the ESA “take” prohibition can mean don’t “shoot,” but it might also mean don’t stop shooting.

Now let’s put aside the heavy weapons and consider the ESA implications of a much gentler act: a newborn baby draws her first breath and issues a welcome cry. In doing so, she emits carbon dioxide, contributing to climate change and thereby adding to the jeopardy faced by threatened polar bears and endangered corals. According to EPA scientists, the effect on climate is extraordinarily small, but not incalculably so. Each molecule of carbon dioxide is a calculable fraction of the whole, for which peer-reviewed estimates exist that permit one to calculate future temperature changes. Every baby’s breath contributes to the cumulative effect.

Fortunately, because breathing is otherwise lawful and the “take” is incidental, the baby has not committed a crime. And, because that breath does not require a permit from a federal agency, there is no need to wait for the uncertain conclusion of a multi-year consultation process.

Shockingly, however, the sheer tininess of the contribution would not necessarily be considered exculpatory. To date, courts have not recognized any *de minimis* limitation to the reach of the ESA. As a result, a great many routine activities do get caught by the consultation requirement, particularly in the West where the pattern of land ownership has woven the federal government much more deeply into the fabric of the economy.

The result is that ESA requirements routinely usurp long-established property rights, water rights, contracts, and business practices. While it is easy to explain to the hunter why he must not shoot that animal, it can be quite difficult to explain to a farmer why he must let his crops wither because some other creature now claims the water source that he has always used, that he has paid for, and that he may even have built.

It would be facile, but wrong, to conclude that mission creep has pushed the ESA far beyond its intended purpose. The fact is that straightforward prohibitions on take, in the narrow sense, are not nearly sufficient to protect species that are clearly in jeopardy. In many cases the preservation of species requires that critical habitat be preserved and that land use and water use be altered. This is expensive business. By extending the metaphor of the hunter, however, the ESA effectively presumes that all of the necessary expense can be laid upon some perpetrator, whose motive and intent may be absent, and whose weapon may be any plausible probabilistic causal chain of events. And it presumes that all other vested rights or property or interests must be subordinated—not just to the need to protect the species, but to the need to impose the cost on

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<sup>23</sup> 16 U.S.C. § 1532(19).

this particular party whose tenuous role in the supposed jeopardy happens to fall into the broad net of federal action.

### **Directions for Reform**

As a state official, I once received a request for a permit to recover a shipwreck, discovered with sand-penetrating sonar beneath state waters, that might include as much as \$500 million in gold. According to the Attorney-General's office, if it turned out that any part of the wreck was protruding above the sand, then state law treated the find as an abandoned shipwreck and allowed for a discretionary state royalty in cash or in kind; a plurality of coastal states set such a royalty at 25 percent. On the other hand, if no part of the wreck was protruding above the sand, then the applicant would need a sand-and-gravel mining permit—the precise composition of the gravel was not germane—for which the royalty was again discretionary, but traditionally had been set at 5 percent. I notified the applicant that the state would require a royalty of 25 percent, regardless of which statute turned out to be applicable. I wanted to avoid putting the parties in a position of having a \$100 million argument about the meaning of “part,” “shipwreck,” “was,” and “protruding.” Undoubtedly a great deal of technology, evidence, and expert scientific and legal testimony could have been brought to bear on these questions. But the answers were of no real interest to any party, and by setting an invariant royalty I sought to make the answers legally immaterial as well.<sup>24</sup>

Similarly, many of the scientific questions that are controversial under the ESA are substantively unimportant. Does a northern spotted owl become a California spotted owl just by flying across a river? This is semantics, and is biologically unimportant. Are two populations of salmon sufficiently distinct to be treated as separate species? It doesn't matter biologically. It only matters because Congress wrote a law that dramatically alters private rights, contingent upon subtle scientific distinctions.

A primary goal of ESA reform should be to rewrite the law so that government agencies and affected parties can stop wasting time and resources arguing about things that substantively are, and legally ought to be, immaterial. The protection of endangered species—and particularly the preservation of critical habitat—should be treated less as a regulatory problem, and more as a complex and cooperative enterprise.

A similar change is underway in the movement to preserve historic properties. The Buckland Preservation Society<sup>25</sup> is attempting to control land use in and around Buckland, Virginia, an 18<sup>th</sup> century village and civil war battlefield. The approach is not regulatory, but relies on mutual consent; the organization buys what it wants to preserve, or enlists the

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<sup>24</sup> See *Sea Hunt, Inc. v. Unidentified, Shipwrecked Vessel or Vessels*, 22 F. Supp. 2d 521, 526 (E.D. Va. 1998) and related cases. Federal and international legal issues in this case proved to be far more difficult than state legal issues; the sought-after gold so far has not been recovered. Unless the U.S. Supreme Court grants certiorari, the King of Spain (who, until a federal judge forbade it, was represented in court by the U.S. Justice Department!) now holds the shipwreck recovery rights. For a narrative of the legal twists and turns in this case, see [www.thehiddengalleon.com/treasurehunter](http://www.thehiddengalleon.com/treasurehunter).

<sup>25</sup> The author is a member of the board.

cooperation of the owner.<sup>26</sup> As a result, there have been no conflicts with landowners or would-be developers.

Species preservation could take a similar strategy. Advocates and government agencies whose goal was to preserve a species could pay for habitat, place whatever protective easements were deemed effective, and either retain the property in fee simple ownership, or sell it for uses consistent with the protective easements. Such a strategy would be expensive, but very flexible and more effective than regulatory approaches, as well as less controversial and more likely to produce cooperative information collection.

If (as seems likely) the preservation of endangered species is deemed a sufficiently public purpose, the power of eminent domain could be invoked to compel the transaction where necessary. Effectively this is the same proposal that other authors have made: that the taking of property under the ESA should be compensated.

In one case the federal court of claims has found that an ESA action constituted a compensable taking,<sup>27</sup> but the facts were very particular, and the court in a subsequent case found reason to deny compensation.<sup>28</sup> There is some evidence that anticipation of possible compensation claims has affected particular administrative decisions. The Fish and Wildlife Service designated critical habitat for the spotted owl on federal lands in the Pacific Northwest, but not on state and private lands that were interspersed in the same area in a checkerboard pattern and were, at least from the owl's perspective, indistinguishable.<sup>29</sup> While courts in future cases might further explore the question of when ESA exactions require compensation, they will not be able to convert the Act from a regime of adversarial conservation into one of cooperative conservation. Again, legislative reform is needed.

Much of the above discussion of the problem and its possible solution cannot easily be applied to the Section 7 consultation process. In a regime where private parties are compensated for their contributions to species preservation, how should we handle federal actions in which private parties have a concentrated interest? What compensable right do landowners have to the water behind a federal dam, and what if it is one that is not yet built? If a landowner has applied for a permit from a federal agency subject to a consultation requirement, we can imagine that the Services might treat the consultation as a "right of first refusal" opportunity—a chance to buy

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<sup>26</sup> The Buckland Preservation Society lists on its website ( [www.BucklandVA.org](http://www.BucklandVA.org) ) the following principles:

- This project has been initiated by property owners in Buckland, who believe that ownership is the best foundation for good stewardship.
- We are in agreement that historic preservation is the highest and best use of our properties and that we shall strive to protect the historical integrity of the Buckland Historic District and the surrounding landscape including the core ground of the Buckland Races/Battle of Buckland Mills Battlefield.
- We expect to use purchases, leases, easements, options, covenants, life tenancies, and other creative means of ownership to support our vision for Buckland.
- We expect to avoid the use of condemnation, litigation, regulation, owner-contested rezoning, or other coercive methods, since these tend to cause historic properties to be viewed more as liabilities than assets.
- We will ask government officials not to use condemnation to take historic properties in Buckland, whether for transportation corridors or other uses.

<sup>27</sup> Tulare \_\_.

<sup>28</sup> Klamath \_\_.

<sup>29</sup> The author was a consultant to landowner Plum Creek Timber Company in this matter.

whatever portion of the subject property that might, in the Services' judgment, be needed to support a recovery plan. And unreasonable delays in the conduct of such consultations might be treated as temporary takings. But what if the application is for registration of a pesticide? Does the registrant, or the user, or some other party have any right to compensation if the Services decide to impose costly prohibitions? If not, is there some other mechanism that will create the incentives for parties to cooperate in the pursuit of cost-effective species conservation?

These are not easy questions, but they are not scientific questions either. They are for Congress to address.