

# THE ECONOMICS OF ENDANGERED SPECIES: WHY LESS IS MORE IN THE ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATIONS

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*The Endangered Species Act (“ESA”) is the paradigmatic “absolutist” statute of American environmental law—mandating that species be protected regardless of cost. However, one formerly underapplied section of the ESA allows the U.S. Fish and Wildlife Service (“FWS”) to consider economic costs when designating “critical habitat” for endangered species. A recent Tenth Circuit decision, *New Mexico Cattle Growers Association v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001), has reinvigorated this provision. Economic analyses performed by FWS in the wake of *Cattle Growers* have involved increased quantification, formalization, and complexity, a trend that reflects a broader faith in cost-benefit analysis that has recently emerged within both government and academia.*

*This Article argues that the ascendancy of cost-benefit analysis should not replace well-tested, superior approaches to assessing economic costs in environmental standard setting. Throughout the 1970s, Congress generally eschewed formal economic cost-benefit analysis in favor of “short-cut” standards, an approach to environmental regulation that provides for consideration of regulatory costs without requiring the substantial investment necessary for a fully quantified analysis. In contrast, applying formal economic cost-benefit analysis to the ESA is inconsistent with congressional intent and, moreover, simply a bad idea. Cost-benefit analysis forces incommensurable values into a common metric; it produces hopelessly indeterminate results; it clouds transparency and undermines public participation; and it delivers all this regulatory imperfection for an unreasonably high price.*

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## I. INTRODUCTION

American environmental law is often portrayed as a war between two opposing camps. The tree huggers insist that human and ecological health are of paramount value and that our laws should protect these values regardless of cost. The bean counters respond that we live in a world of limited resources and that in order to allocate resources wisely we must make every effort to quantify the costs and benefits of proposed environmental restrictions and implement them only when their benefits to society exceed their costs.<sup>1</sup> In this fabled war, it appears that the bean counters have been gaining ground in recent decades. An executive order requiring all major federal regulations to pass a cost-benefit test has been in place since the Reagan presidency.<sup>2</sup> Government agencies are becoming increasingly confident of their abilities to quantify even seemingly intangible “benefits,” like the value of an endangered species or a human life. And courts appear increasingly willing to assume that ambiguous congressional directives either allow or even require agencies to perform cost-benefit analysis.<sup>3</sup> Indeed, Cass Sunstein has even gone so far as to announce that the debate is over, declaring “victory for the proponents of cost-benefit analysis.”<sup>4</sup>

One illustrative iteration of the tree-hugger/bean-counter debate is currently playing out in the context of the Endangered Species Act (“ESA”).<sup>5</sup> The ESA, passed in 1973 at the height of the popular environmental movement, is held up in environmental law courses across the nation as the paradigmatic “absolutist” statute—a tree hugger’s dream. With a few minor exceptions, its prohibitions are unequivocal, based purely on biological science, unqualified by economic considerations. In the now famous words of the U.S. Supreme Court, “[t]his language admits of no exception . . . . The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, *whatever the cost*.”<sup>6</sup>

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<sup>1</sup> I have borrowed the “tree hugger/bean counter” parlance from Daniel Farber. See DANIEL A. FARBER, *ECO-PRAGMATISM* 39 (1999). See also Douglas A. Kysar & James Salzman, *Environmental Tribalism*, 87 MINN. L. REV. 1099, 1102 (2003) (describing environmental law and policy as polarized into “two warring camps”).

<sup>2</sup> See Exec. Order No. 12,291, 46 Fed. Reg. 13,193 (Feb. 17, 1981); Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Sept. 30, 1993).

<sup>3</sup> See Cass R. Sunstein, *Cost-Benefit Default Principles*, 99 MICH. L. REV. 1651 (2001).

<sup>4</sup> *Id.* at 1655. A glance at the recent literature suggests that Professor Sunstein’s victory party may be premature. See, e.g., Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L. J. 981 (1998); Thomas O. McGarity, *Professor Sunstein’s Fuzzy Math*, 90 GEO. L. J. 234 (2002); David M. Dreisen, *The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis*, 24 ECOL. L. Q. 545 (1997). See also Matthew D. Adler & Eric Posner, *Introduction: Cost-Benefit Analysis: Legal, Economic, and Philosophical Perspectives*, 29 J. L. STUD. 837 (2000) (characterizing the academic literature on cost-benefit analysis as “skeptical”).

<sup>5</sup> 16 U.S.C. §§ 1531–1544 (2000).

<sup>6</sup> *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 173, 184 (1978) (emphasis added).

This absolutism provoked the ire of development interests almost as soon as the statute was implemented, and in 1978, after the Supreme Court enjoined construction of the nearly completed \$100 million Tellico Dam in order to protect the critical habitat of a little-known fish called the snail darter, those interests succeeded in making a crack in the ESA's absolutist armor. Congress amended the statute to add a provision requiring the U.S. Fish and Wildlife Service ("FWS")<sup>7</sup> to consider "economic impact[s]" as well as biological considerations when designating "critical habitat" for an endangered or threatened species.<sup>8</sup>

Until recently, this crack remained little more than a hairline fracture. FWS's "de facto policy" of non-implementation of the critical habitat provisions of the ESA ensured that the controversial "economic impact" language rarely had any meaningful effect on the level of protection afforded to endangered and threatened species.<sup>9</sup> But in May 2001, a decision from the Tenth Circuit Court of Appeals wedged that crack open. *New Mexico Cattle Growers Association v. United States Fish and Wildlife Service*<sup>10</sup> rejected FWS's methodology for performing economic analyses of critical habitat designations, a methodology that, according to the court, virtually guaranteed a finding of no significant economic costs. In the wake of this decision, FWS has voluntarily remanded dozens of critical habitat designations in order to perform new economic analyses, and the agency is subjecting its methodology for conducting these analyses to a substantial overhaul. Early indications are that the new economic analyses are becoming increasingly detailed and quantified, and it seems likely that the trend toward an increasingly complicated dollars-to-dollars comparison of costs and benefits will continue.

At first blush, this looks like another win for the bean counters. Indeed, if we are now employing formal cost-benefit analysis to weigh even the worth of endangered species, perhaps Professor Sunstein is right. Perhaps cost-benefit analysis really is "for everyone."<sup>11</sup> But it is a mistake

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<sup>7</sup> This duty, as with the administration of the ESA in general, devolves on either FWS or the National Marine Fisheries Service ("NMFS"), depending on the type of species involved. Generally, the Secretary of the Interior has jurisdiction over terrestrial species, which it exercises through FWS, and the Secretary of Commerce has jurisdiction over marine species (including anadromous fish), which it exercises through NMFS. See 16 U.S.C. § 1532(15) (1999) (referencing Reorganization Plan No. 4 of 1970, 35 Fed. Reg. 15,627, 84 Stat. 2090 (1970)). There are some exceptions, however. FWS, for example, has jurisdiction over sea otters and marine birds. MICHAEL J. BEAN & MELANIE J. ROWLAND, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 203, n.49 (1997); 50 C.F.R. §§ 222.23(a) & 227.4 (1996). Since FWS has primary authority for administration of the ESA, see 16 U.S.C. § 1533(a)(2) (1999), and since the majority of species are under its jurisdiction, for simplicity's sake I generally refer only to FWS in this Article. In most instances, references to FWS apply equally to NMFS.

<sup>8</sup> 16 U.S.C. § 1533(b)(2) (2000).

<sup>9</sup> Daniel J. Rohlf, *Jeopardy Under the Endangered Species Act: Playing A Game Protected Species Can't Win*, 41 WASHBURN L.J. 114, 117 n.9 (2001).

<sup>10</sup> 248 F.3d 1277 (10th Cir. 2001).

<sup>11</sup> CASS R. SUNSTEIN, *THE COST-BENEFIT STATE* 20 (2002). Calls for a "market ap-

to dichotomize the choice presently facing FWS. Environmental law offers more than just a choice between two diametrically opposed positions. In fact, American environmental law has a rich tradition of “compromise” and “short-cut” standards that do not fall within either of the ideologically pure categories of absolutism or cost-benefit analysis. Indeed, it is rare for Congress to legislate at either of these extremes.

Congress usually requires efforts to protect human and ecological health to be tempered by some consideration of economic costs. But it has rarely required agencies to engage in formal, quantified cost-benefit analysis. More often, Congress has opted for “short-cut” standards that provide for some consideration of the costs of regulation, but do not require the substantial investment of resources necessary for agencies to fully quantify and balance costs and benefits. Thus, Congress has sometimes called for a rough apples-to-oranges balancing aimed not at a precise calculation of net social cost, but simply at ensuring that costs and benefits are not grossly disproportionate. Other common “short-cut” regulatory mechanisms frequently employed by Congress in the first generation environmental statutes of the 1970s include “technology-based” or “feasibility” standards. These standards essentially focus only on the costs side of the cost-benefit equation, setting pollution limits at the lowest level technologically and economically feasible (or conversely, setting the costs at the upper limit of what we can “afford”). Such standards can be viewed as resting on an implicit assumption that the environmental and health benefits they deliver are high enough to offset the costs.

These short-cut regulatory approaches are premised either on a conviction that the values contained in the cost-benefit equation are simply incommensurable (that the value of, say, biodiversity simply cannot or should not be measured along the same metric as money), or on a concern that, while comparing costs and benefits along a single metric might be desirable, the investment of time and resources necessary to achieve an accurate quantification of all the relevant values is simply not available and/or wholly out of proportion to the regulatory benefits to be achieved. In either case, short-cut standards are intellectually defensible and have often been the mechanism of choice for a Congress concerned with ensuring that regulations necessary to address ongoing and sometimes irreversible environmental degradation are not interminably delayed by a time- and resource-intensive search for regulatory perfection.

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proach” to endangered species conservation have recently begun to emerge. See Barton H. Thompson, Jr., *People or Prairie Chickens: The Uncertain Search for Optimal Biodiversity*, 51 STAN. L. REV. 1127 (1999); Nancy K. Kubasek, M. Neil Browne & Michael D. Meuti, *Cross-examining Market Approaches to Protecting Species*, 30 ENV'T L. REP. 10,721, 10,724 (2000). See also Julie Cart, *Species Protection Act “Broken”: A Top Interior Officer Says the Law Should be Revised to Give Economic and Other Interests Equal Footing with Endangered Animals and Plants*, L.A. TIMES, Nov. 14, 2003, at 6 (quoting Assistant Secretary of Interior Craig Manson).

As such, they form an important part of our environmental tradition that should inform any discussion of environmental regulatory mechanisms.

In navigating the tree-hugger/bean-counter contest currently playing out with respect to the critical habitat provisions of the ESA, remembering the significant role played by short-cut standards in American environmental law leads to two important conclusions. First, we should view the “economic impact” language in the ESA in the historical context of the 1970s, when Congress generally favored short-cut standards and viewed elaborate cost-benefit analysis with suspicion. Second, in this debate, as in all environmental debates, we should avoid simplistic dichotomizations that obscure the availability of other, perhaps less ideologically pure, but nonetheless useful and theoretically coherent, options. As cost-benefit analysis has gained increasing attention over the past two decades and formerly controversial techniques for quantifying non-market values have begun to gain acceptance in governmental as well as academic circles, we seem to have forgotten that a fully quantified cost-benefit analysis is not the only way to take costs into account in setting environmental standards. Particularly where delay threatens irreversible ecological loss, short-cut standards provide a legitimate, time-tested alternative.

Part II of this Article provides a brief overview of cost-benefit analysis and the recent trend toward its increased use in government decision-making. Part III describes the limited role that economic considerations have played in the ESA, beginning with the absolutism of the original Act, the controversies that it spawned, and the subsequent amendment of the ESA in 1978 to provide limited consideration of economic factors. It then explains how FWS’s policy of non-implementation of the critical habitat provisions of the Act minimized the impact of this amendment during the first two decades of its existence. Part IV explains and critiques the *Cattle Growers* decision and examines the economic analyses that have recently been produced by FWS in its wake, arguing that the emerging trend toward increasing complexity and quantification is likely to continue as environmentalists and industry each push to buttress their side of the equation.

Finally, Part V argues that FWS should resist this trend. A concrete, contextual examination of the agency’s attempts to apply formal economic cost-benefit analysis to critical habitat designations demonstrates the inaptness of this approach. It illogically forces incommensurable values into a common metric, produces hopelessly indeterminate results, undermines the democratic process, and diverts precious resources from the real business of saving species. FWS should instead adopt a “short-cut” approach that makes a rough apples-to-oranges comparison of the costs and benefits of designation. Such an approach is consistent with the language and legislative history of the ESA as well as with wise public policy.

## II. BEAN COUNTERS: THE RISE OF THE COST-BENEFIT CREDO

In one sense, the cost-benefit ideal has always lurked in the background of environmental law. Even the early nuisance cases engaged judges in a kind of rough cost-benefit analysis, asking whether the social benefits of a given land use outweighed its social costs.<sup>12</sup> But the idea of formally quantifying both sides of the equation in order to come up with a numeric ratio of costs to benefits began in the early twentieth century with the Army Corps of Engineers' evaluation of federal flood control projects.<sup>13</sup> Through the first half of the century, these analyses were conducted primarily by engineers who shied away from attempting to assess in monetary terms values that were considered intangible, like recreation. In the 1950s and 1960s, however, the new welfare economics began to develop a theoretical framework for cost-benefit analysis. The theory assumed that all costs and benefits, no matter how intangible, could be measured in monetary terms. Cost-benefit analysis could thereby use the politically neutral means of mathematical calculation to derive decisions that maximize overall social welfare in all sorts of public policy realms.<sup>14</sup> Economists then set to work putting this theory into practice by developing methods for actually measuring these intangible, non-market values.<sup>15</sup> In the following pages, I will use the term "formal economic cost-benefit analysis" to refer to this method of analysis that draws on princi-

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<sup>12</sup> See, e.g., *Madison v. Ducktown Sulfur, Copper & Iron Co.*, 83 S.W. 658 (Tenn. 1904) (refusing to award injunction to injured landowners with land worth less than \$1,000 against copper smelting plant worth \$2,000,000). See generally WILLIAM H. RODGERS, JR., *ENVIRONMENTAL LAW* 119–22 (2d ed. 1994) (discussing historical roots of cost-benefit analysis in common law).

<sup>13</sup> See THEODORE M. PORTER, *TRUST IN NUMBERS: THE PURSUIT OF OBJECTIVITY IN SCIENCE AND PUBLIC LIFE* 149–89 (1995). This practice became a statutory requirement in the Flood Control Act of 1936, ch. 688, sec. 1, 49 Stat. 1570, 1570 (codified as amended at 33 U.S.C. § 701a (2000)), which conditioned the approval of federal flood control projects on a finding that "the benefits to whomsoever they may accrue are in excess of the estimated costs." See generally AJIT K. DASGUPTA & D.W. PEARCE, *COST-BENEFIT ANALYSIS: THEORY AND PRACTICE* 12 (1972).

<sup>14</sup> See, Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960); E.J. MISHAN, *COST-BENEFIT ANALYSIS* (1971). These ideas were controversial from the beginning and elicited criticism from scholars across many disciplines. See, e.g., IAN MCHARG, *DESIGN WITH NATURE* 25 (1969):

Neither love nor compassion, health nor beauty, dignity nor freedom, grace nor delight are important unless they can be priced. If they are non-price benefits or costs they are relegated to inconsequence. The economic model proceeds inexorably toward its self-fulfillment of more and more despoilation, uglification, and inhibition to life, all in the name of progress—yet, paradoxically, the components which the model excludes are the most important human ambitions and accomplishments and the requirements for survival.

<sup>15</sup> See PORTER, *supra* note 13, at 188 ("[E]conomists did not recoil at the idea of placing money values on the previous generation's intangibles."). See generally ANTHONY E. BOARDMAN ET AL., *COST-BENEFIT ANALYSIS: CONCEPTS AND PRACTICE* (1996).

ples of welfare economics in order to monetize both the costs and the benefits to society as a whole of a proposed course of action and recommends proceeding only where the benefits exceed the costs.<sup>16</sup>

During the 1970s, formal economic cost-benefit analysis remained largely confined to academic circles, and, as explained more fully in Part V.A, Congress and the courts remained highly skeptical of the idea. Attitudes about formal economic cost-benefit analysis began to shift markedly in the 1980s, however.<sup>17</sup> Within a month of taking office, President Reagan issued an executive order requiring agencies to prepare cost-benefit analyses of major rules and to issue regulations only when the analysis showed that “the potential benefits to society outweigh the potential costs to society.”<sup>18</sup> This was widely viewed as a tool aimed at furthering Reagan’s avowed mission of dismantling the regulatory state.<sup>19</sup> With minor modifications, however, this essential mandate has remained in place through succeeding administrations, Republican and Democratic.<sup>20</sup> The executive order has somewhat limited effect since it cannot supersede statutory directives. In 1995, however, Congress came very close to passing a statute that would have imposed a binding requirement that all federal health, safety, and environmental regulations pass a cost-benefit test, overriding any statutory requirements to the contrary.<sup>21</sup>

Cass Sunstein has observed a parallel trend in the courts. In 1981, the Supreme Court viewed cost-benefit analysis as a special case and directed courts to assume that Congress had *not* authorized an agency to

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<sup>16</sup> In the parlance of welfare economics, such a result is justified as achieving “Kaldor-Hicks optimality.” That is, the overall benefits to society of some course of action exceed the overall costs to society, in that those who would benefit from the change could theoretically fully compensate those made worse off by the change and still be better off. *See* MISHAN, *supra* note 14, at 316; Dasgupta & Pearce, *supra* note 13, at 57. *But see* Matthew D. Adler & Eric Posner, *Rethinking Cost-Benefit Analysis*, 109 *YALE L.J.* 165, 190–92 (1999) (arguing that cost-benefit analysis cannot be justified under the Kaldor-Hicks theory).

<sup>17</sup> *See* SUNSTEIN, *supra* note 11, at 10 (“Since 1980, all three branches of government have shown an increased interest in cost-benefit balancing.”).

<sup>18</sup> Exec. Order No. 12,291 § 2(b), 46 *Fed. Reg.* 13,193 (Feb. 17, 1981).

<sup>19</sup> *See* MARK SAGOFF, *THE ECONOMY OF THE EARTH* 21–22 (1988); Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 *U. CHI. L. REV.* 1, 45 (1995).

<sup>20</sup> *See* Exec. Order No. 12,866, 58 *Fed. Reg.* 51,735 (Sept. 30, 1993).

<sup>21</sup> Part of the Republican’s “Contract with America,” the proposed Risk Assessment and Cost-Benefit Act of 1995 would have essentially codified the Reagan executive order. H.R. 1022, 104th Cong. (1995). It would have required agencies to perform formal cost-benefit analyses of all proposed “major health, safety, and environmental rules” (those with annual costs of \$25 million or more), and prohibited promulgation of any final rule unless the agency certified that the benefits justified the costs. *Id.* The bill explicitly stated that its provisions were to “supplement and, to the extent there is a conflict, supersede” the decision criteria for rulemaking otherwise applicable under the statute pursuant to which the rule is promulgated. *Id.* After it passed the House by 271 to 141, the Senate counterpart fell just two votes short of overcoming a filibuster.

States have also increasingly been adopting cost-benefit analysis. *See* Robert W. Hahn, *State and Federal Regulatory Reform: A Comparative Analysis*, 29 *J. LEG. STUD.* 873 (2000).

make decisions on the basis of cost-benefit analysis absent explicit instructions in a statute.<sup>22</sup> But in the intervening twenty years, Sunstein argues, the federal courts have begun to develop an opposite presumption—what he calls a “cost-benefit default principle”—under which agencies are presumed to have the authority to make decisions based on cost-benefit analysis unless a statute explicitly states otherwise.<sup>23</sup>

These changing attitudes are reflected in the academic literature as well. Scholarship advocating the use of formal economic cost-benefit analysis has proliferated in the past two decades.<sup>24</sup> Part of this trend has been an increasing acceptance of economic methods that attempt to put a dollar figure on seemingly non-quantifiable values, like a human life or an endangered species. Hedonic surveys, for example, attempt to infer a dollar value for things not traded in markets by observing things that *are* traded in markets and are thought to reflect the unpriced value.<sup>25</sup> Thus, an economist might attempt to measure the value people attach to unspoiled open space by comparing the prices of otherwise comparable properties located adjacent to spoiled and unspoiled areas. Or an economist might measure the recreational “use value” attached to natural resources by measuring the admission fees hikers pay to gain access to a national park or the amount recreational fishermen pay for a fishing license.<sup>26</sup>

Some values, however, are not even arguably reflected in any market price. Economists acknowledge that natural resources and wildlife have value beyond that stemming from our commercial, recreational, aesthetic, or scientific use of them. That is, people often view natural resources as having value simply by virtue of their very existence, apart from any intention they may have to ever visit or otherwise “use” the resource.<sup>27</sup> For example, many Americans attach value to the Arctic National Wildlife

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<sup>22</sup> See *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 510 (1981) (“When Congress has intended that an agency engage in cost-benefit analysis, it has clearly indicated such intent on the face of the statute.”).

<sup>23</sup> Sunstein, *supra* note 3, at 1654. Although Sunstein acknowledges that this cost-benefit default principle has not yet been adopted by the U.S. Supreme Court, he argues that it should be. *Id.* Justice Breyer clearly favors adoption of such an approach. See *Whitman v. Am. Trucking Assocs.*, 531 U.S. 457, 490 (2001) (Breyer, J., concurring) (“I believe that, other things being equal, we should read silences or ambiguities in the language of regulatory statutes as permitting, not forbidding, this type of rational regulation [balancing costs against environmental benefits].”). *But see* Amy Sinden, *Cass Sunstein’s Cost-Benefit Lite: Economics for Liberals*, COLUM. J. ENVTL. L. (forthcoming) (arguing that Sunstein overstates the adoption of cost-benefit default principles by the courts).

<sup>24</sup> See, e.g., *COST-BENEFIT ANALYSIS: LEGAL, ECONOMIC, AND PHILOSOPHICAL PERSPECTIVES* (Matthew D. Adler & Eric Posner eds., 2001); CASS R. SUNSTEIN, *RISK AND REASON* (2002). Cost-benefit analysis also continues to receive harsh criticism in the academic literature. See *supra* note 4, at 1655.

<sup>25</sup> See David S. Brookshire et al., *Valuing Public Goods: A Comparison of Survey and Hedonic Approaches*, 72 AM. ECON. R. 165 (1982); BOARDMAN ET AL., *supra* note 15, at 318–24.

<sup>26</sup> See generally BOARDMAN ET AL., *supra* note 15, at 318–24.

<sup>27</sup> See Thomas H. Stevens et al., *Measuring the Existence Value of Wildlife: What Do CVM Estimates Really Show?*, 67 LAND ECON. 390 (1991).

Refuge and wish to see it protected from development even though they have no intention of ever setting foot there. Economists typically attempt to measure and monetize these “existence values” through the mechanism of the “contingent valuation method.”<sup>28</sup> These studies essentially take the form of a sophisticated public opinion poll. Respondents are given information about a particular natural resource and then asked how much they would be willing to pay to preserve it. For example, one such “willingness-to-pay survey” concludes that the average American household is willing to pay \$257 to prevent the extinction of bald eagles.<sup>29</sup>

As such studies have proliferated in the scientific literature,<sup>30</sup> government regulators have shown an increasing willingness to rely on them.<sup>31</sup> The Environmental Protection Agency’s (“EPA”) recent cost-benefit analysis of the arsenic rule under the Safe Drinking Water Act, for example, relied in part on a shopping mall survey that asked respondents to state how much they would be willing to pay to reduce their risk of contracting chronic bronchitis.<sup>32</sup> Multiple agencies have explicitly endorsed the use of willingness-to-pay or contingent valuation methods in their regulations.<sup>33</sup>

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<sup>28</sup> See *id.*; IAN J. BATEMAN & KENNETH G. WILLIS, VALUING ENVIRONMENTAL PREFERENCES: THEORY AND PRACTICE OF THE CONTINGENT VALUATION METHOD IN THE US, EU, AND DEVELOPING COUNTRIES (1999); KRISTIN M. JAKOBSSON & ANDREW K. DRAGUN, CONTINGENT VALUATION AND ENDANGERED SPECIES: METHODOLOGICAL ISSUES AND APPLICATIONS 77–115 (1996). For a critique, see John M. Heyde, *Is Contingent Valuation Worth the Trouble?*, 62 U. CHI. L. REV. 331 (1995).

<sup>29</sup> John B. Loomis & Douglas S. White, *Economic Benefits of Rare and Endangered Species: Summary and Meta-analysis*, 18 ECOLOGICAL ECON. 197, 199 tbl. 1 (1996).

<sup>30</sup> See Stevens, *supra* note 27.

<sup>31</sup> See Sunstein, *supra* note 11, at 77 (calling willingness-to-pay studies “now standard” and noting that an approach to cost-benefit analysis that uses willingness-to-pay studies to monetize nonquantifiable costs and benefits “increasingly dominates administrative practice”); Farber, *supra* note 1, at 50 (identifying a “trend” in favor of contingent valuation). The Clinton Administration issued guidelines for agency use of cost-benefit analysis explicitly authorizing the use of contingent valuation studies. See Regulatory Working Group, Office of Management and Budget, *Economic Analysis of Federal Regulations under Executive Order 12866 § III(B)(4)* (Jan. 11, 1996), available at <http://www.whitehouse.gov/omb/inforg/riaguide.html#iii> (last viewed Oct. 24, 2003) [hereinafter *OMB Guidelines*]. See also Earl R. Ekstrand & John Loomis, *Incorporating Respondent Uncertainty When Estimating Willingness to Pay for Protecting Critical Habitat for Threatened and Endangered Fish*, 34 WATER RESOURCES RES. 3149 (1998); Paul Portney, *The Contingent Valuation Debate: Why Economists Care*, J. ECON. PERSP. 3, 8, 15 (Fall 1994).

<sup>32</sup> National Primary Drinking Water Regulations, 66 Fed. Reg. 6976, 7012 (Jan. 22, 2001).

<sup>33</sup> See *Ohio v. U.S. Dep’t of Interior*, 880 F.2d 432, 474–78 (D.C. Cir. 1989) (upholding CERCLA regulations authorizing the use of the contingent valuation method in calculating natural resource damages). See 43 C.F.R. § 11.83 (2002) (codifying use of contingent valuation methods to calculate natural resource damages under CERCLA); 15 C.F.R. § 990.53 (2003) (codifying use of contingent valuation methods under the Oil Pollution Act). Courts, on the other hand, have been skeptical of attempts in personal injury cases to proffer expert testimony from economists using hedonic and contingent valuation methods to put a dollar value on human life, excluding such testimony as unreliable and unhelpful to the jury. See, e.g., *Smith v. Ingersoll-Rand Co.*, 214 F.3d 1235, 1245 (10th Cir. 2000);

Thus, formal economic cost-benefit analysis has gained considerable credibility and influence over the past several decades. Indeed, as the next Part explains, there are recent signs that it is even beginning to encroach on the heretofore near-sacred refuge of the tree huggers: the Endangered Species Act.

### III. TREE HUGGERS: ECONOMIC CONSIDERATIONS TAKE A BACK SEAT UNDER THE ESA

The Endangered Species Act is often held up as the antithesis of cost-benefit regulation. Nicknamed the “pit bull” of environmental statutes,<sup>34</sup> it is a remarkable piece of legislation, setting strict limits on economic activity in a way that few other, if any, environmental statutes do.<sup>35</sup> Its prohibitions are nearly absolute, based entirely on biological standards, with no room for consideration of economic impacts.<sup>36</sup> Indeed, it explicitly names “economic development” as the enemy. The very first words of the statute declare that: “various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation.”<sup>37</sup>

#### A. *Basic Provisions of the ESA*

The Act’s protections are triggered by the listing of a species as either threatened or endangered, a task performed by FWS for terrestrial species and by the National Marine Fisheries Service (“NMFS”) for marine species.<sup>38</sup> The listing process is critical, since only those species listed as threatened or endangered receive the protections afforded by the remainder of the ESA. The original Act, passed in 1973, directed the Secretary to make listing determinations based on biological factors only—“on

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Hein v. Merck & Co., 868 F. Supp. 230 (M.D. Tenn. 1994).

<sup>34</sup> See George Cameron Coggins, *An Ivory Tower Perspective on Endangered Species Law*, 8 NAT. RESOURCES & ENV’T 3, 3 (1993); Timothy Egan, *Strongest U.S. Environment Law May Become Endangered Species*, N.Y. TIMES, May 26, 1992, at A11 (World Wildlife Fund vice president Donald Barry, stating that ESA is “short, compact and has a hell of a set of teeth. Because of its teeth, the act can force people to make the kind of tough political decisions they wouldn’t normally make.”).

<sup>35</sup> Mark Sagoff, *Economic Theory and Environmental Law*, 79 MICH. L. REV. 1393, 1396 (1981) (ESA “flout[s]” the concept that economic efficiency should be the goal of all public policy).

<sup>36</sup> But see Michael C. Blumm & Greg D. Corbin, *Salmon and the ESA: Lessons from the Columbia Basin*, 74 WASH. L. REV. 519, 589 (1999) (arguing that in practice ESA consultation is actually quite sensitive to economic considerations); STEVEN LEWIS YAFFEE, PROHIBITIVE POLICY: IMPLEMENTING THE FEDERAL ENDANGERED SPECIES ACT 86–89 (1982) (arguing that the ESA is not absolute in practice; decisions made under it are product of negotiation and implicit cost-benefit balancing).

<sup>37</sup> 16 U.S.C. § 1531(a)(1) (2000).

<sup>38</sup> See *supra* note 7.

the basis of the best scientific and commercial data available.”<sup>39</sup> Later, in 1982, Congress added the word “solely” to the beginning of that phrase in order to clarify its intent that economic considerations should play no role in listing determinations.<sup>40</sup>

In 1973, the ESA’s prohibitions on trade in endangered species were viewed as its most important provisions,<sup>41</sup> but in the years since, the obligations imposed on federal actors by Section 7 and on private actors by Section 9 have emerged as the Act’s most significant and controversial provisions. Section 9 makes it unlawful for “any person” to “take” an endangered species,<sup>42</sup> and “take” is defined broadly to include “significant habitat modification.”<sup>43</sup> Because it applies to private as well as government actors, because it implicates land use practices as well as hunting, and because—like the Act generally—it prohibits any balancing of economic concerns, Section 9 has generated considerable controversy. The focus of this Article, however, is on Section 7 and the duty it imposes on federal actors to protect “critical habitat.”

Section 7 imposes a duty on all federal agencies to “insure that any action authorized, funded, or carried out by [the] agency . . . is not likely to jeopardize the continued existence” of a threatened or endangered species “or result in the destruction or adverse modification of habitat . . . which is determined by the Secretary . . . to be critical.”<sup>44</sup> These “jeopardy” and “adverse modification” standards, like the listing standard and the take standard, are purely biological.<sup>45</sup> Thus, under the plain terms of

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<sup>39</sup> 16 U.S.C. § 1533(b)(1)(A) (2000). The word “commercial” refers to the use of trade data. It was not intended (and has never been interpreted) to authorize consideration of economic factors in the listing determination. *See* H.R. REP. NO. 97-567 at 20 (1982).

<sup>40</sup> *See* H.R. REP. NO. 97-567 at 20 (1982) (“specifically reject[ing]” applying economic criteria to the listing process).

<sup>41</sup> *See* Shannon Petersen, *Congress and Charismatic Megafauna: A Legislative History of the Endangered Species Act*, 29 ENVTL. L. 463, 478 (1999).

<sup>42</sup> 16 U.S.C. § 1538(a)(1)(B) (2000). FWS has also applied the take prohibition to threatened species through regulation. 50 C.F.R. § 17.31(a) (2002); *see also* 50 C.F.R. § 17.71(a) (2002) (regarding threatened plants). NMFS applies the take prohibition to marine species on a case-by-case basis pursuant to its authority under Section 4(d) of the ESA, 16 U.S.C. § 1533(d) (2000).

<sup>43</sup> *See* 16 U.S.C. § 1532(19) (2000) (defining “take” to include “harm”); 50 C.F.R. § 17.3 (2002) (defining “harm” to include “significant habitat modification”). “Significant habitat modification” is defined in purely biological terms as activity that “kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.” In 1995, the U.S. Supreme Court upheld FWS’s regulatory definition of “harm” in *Babbitt v. Sweet Home Chapter of Comm. for a Great Oregon*, 515 U.S. 687 (1995).

<sup>44</sup> 16 U.S.C. § 1536(a)(2) (2000).

<sup>45</sup> “Jeopardize the continued existence of” is defined by regulation as “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.” 50 C.F.R. § 402.02 (2002). “Destruction or adverse modification” is defined as “a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.” *Id.*

the Act, federal agencies are prohibited from taking any actions that are likely to jeopardize the continued existence of a listed species or adversely modify its critical habitat regardless of the economic consequences. In instances where a private actor must obtain a permit from a federal agency for a project (e.g., a permit from the U.S. Army Corps of Engineers to fill wetlands),<sup>46</sup> Section 7 can also restrict private activities.

Agencies carry out their Section 7 obligations through a process of “consultation,” in which the acting agency asks the wildlife agency (FWS or NMFS, depending on the species) to provide a “biological opinion” as to the likely effects of their proposed action on listed species.<sup>47</sup> Technically, this biological opinion is advisory only. Thus, if the wildlife agency finds that “jeopardy” or “adverse modification” of critical habitat is likely to occur, the acting agency is arguably free to disagree with that finding and proceed with the project anyway.<sup>48</sup> Agencies rarely do so, however. Unless it can credibly establish that the wildlife agency was wrong in its assessment, the acting agency will by proceeding violate its substantive duty under Section 7 to “insure” that its activities do not cause “jeopardy” or “adverse modification.” And courts are unlikely to believe the acting agency over the expert opinion of the wildlife agency. Indeed, the Supreme Court has sent a clear message to federal agencies that they disregard a biological opinion from a wildlife agency at their peril, calling the biological opinions of FWS and NMFS “virtually determinative.”<sup>49</sup>

Still, while biological opinions under Section 7 have the power to stop development projects in their tracks and have sometimes done so, it is important to recognize that such dramatic results are not the norm.<sup>50</sup> Even in the relatively small number of consultations that result in a finding of jeopardy or adverse modification, the wildlife agency usually suggests minor project modifications—“reasonable and prudent alternatives”—that allow the project to proceed without violating the Act.

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<sup>46</sup> Such permits are required under the federal Clean Water Act. *See* 33 U.S.C. § 1344 (2000).

<sup>47</sup> *See* 16 U.S.C. § 1536(a)–(d); 50 C.F.R. §§ 402.01–402.16 (2002).

<sup>48</sup> *See Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359, 371 (5th Cir. 1976).

<sup>49</sup> *Bennett v. Spear*, 520 U.S. 154, 169–70 (1997).

<sup>50</sup> *See* William J. Snape III, *The Endangered Species Act: Anatomy of an Environmental Scapegoat*, in *ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES* 520 (Donald C. Baur & William R. Irvin eds., 2002) (Although the ESA “asks tough questions about biological sustainability” that often lead to conflict, “[n]ot once has such a conflict been irreconcilable.”).

*B. Original Passage of the ESA: Halting Species Extinction “Whatever the Cost”*

The ESA was passed in 1973, on the “peak of the environmental wave”<sup>51</sup> with barely a “whisper of opposition” in Congress.<sup>52</sup> Public concern about environmental degradation was at an all time high.<sup>53</sup> Rachel Carson’s *Silent Spring*,<sup>54</sup> warning of the threats to wildlife and human health posed by pesticides, had been published a decade earlier, and the powerful image of songbirds silenced by human carelessness was still lodged in the public consciousness. Even the bald eagle, the symbol of American freedom and prosperity, was being poisoned by DDT. In this climate, politicians viewed legislation aimed at protecting endangered species as a “no-lose” proposition.<sup>55</sup> Even natural resource extraction industries that would later spend millions opposing the ESA, voiced no protest in 1973.<sup>56</sup> They apparently failed to anticipate the extent to which the substantive duties the Act imposes on federal and private actors would be used to challenge economic development.<sup>57</sup>

The mood in Congress during the passage of the ESA was high-minded and idealistic. Members of Congress spoke of humanity’s “ethical and moral responsibility to protect other life forms,”<sup>58</sup> of the “profound” losses at stake,<sup>59</sup> and of an “ethic of reverence for all life.”<sup>60</sup> The

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<sup>51</sup> YAFFEE, *supra* note 36, at 48.

<sup>52</sup> 119 CONG. REC. 30,164 (1973) (statement of Rep. Dingell). The ESA passed the Senate unopposed, 119 CONG. REC. 42,535 (1973), and with only four dissenting votes in the House, 119 CONG. REC. 42,915–16 (1973).

The 1973 ESA followed two previous efforts at federal endangered species regulation, the Endangered Species Preservation Act of 1966, Pub. L. No. 89-669, §§ 1–3, 80 Stat. 926 (1966), authorizing the Secretary of Interior to purchase lands for the conservation of endangered species and to publish a list of endangered species, and the Endangered Species Conservation Act of 1969, Pub. L. No. 91-135, 83 Stat. 275 (1969), expanding the list to include international as well as domestic species and mollusks and crustaceans as well as vertebrates, and imposing a prohibition on importation of endangered species into the United States. See MICHAEL J. BEAN, *Historical Background to the Endangered Species Act*, in ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES 15 (Donald C. Baur & William R. Irvin eds., 2002).

<sup>53</sup> See RODERICK NASH, *THE RIGHTS OF NATURE* 172–74 (1989).

<sup>54</sup> RACHEL CARSON, *SILENT SPRING* (1962).

<sup>55</sup> YAFFEE, *supra* note 36, at 57.

<sup>56</sup> Petersen, *supra* note 41, at 477.

<sup>57</sup> *Id.* at 478.

<sup>58</sup> *Predatory Mammals and Endangered Species: Hearings on J.R. 13081 Before the Subcomm. on Fisheries and Wildlife Conservation of the House Comm. on Merchant Marine and Fisheries*, 92d Cong. 480, 484 (1972) (statement of Sen. Cranston).

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* Members of Congress also spoke of humanity’s stewardship obligation. See *Hearings before Subcomm. on Resource Protection of Senate Comm. on Env’t and Public Works*, 95th Cong. 1 (1977) (“The underlying philosophy of the endangered species program is that we, as stewards of the world’s natural and biological resources, do have a special responsibility to conserve and restore those species which are on the verge of extinction as a consequence of man’s imprudence or neglect.”) (statement of Sen. John C. Culver).

tree huggers were having their day, and the bean counters, at least for the moment, remained in the background. Indeed, the bill's supporters clearly rejected any notion that the values being protected could be measured in economic terms. Senator Williams, the sponsor of the Senate bill, commented that "[m]ost animals are worth very little in terms of dollars and cents. However, their esthetic value is great indeed. The pleasure of simply observing them . . . is immeasurable."<sup>61</sup> The report on the House version of the bill called the value of the "genetic heritage" of endangered species "incalculable."<sup>62</sup> And in signing the bill into law, President Nixon proclaimed, "[n]othing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed."<sup>63</sup> This sentiment is still reflected in the language of the statute itself, which, in cataloging the values provided by endangered species, conspicuously omits any reference to economic value.<sup>64</sup>

In designing the ESA in 1973, Congress also clearly recognized the importance of habitat protection to the preservation of endangered species.<sup>65</sup> Indeed, in the declaration of purposes, the Act names the conservation of ecosystems first, ahead of the goal of preserving species themselves.<sup>66</sup> As a result of this concern, Congress included in Section 7, along with the prohibition against jeopardy to a species's continued existence, the prohibition on the "destruction or modification" of critical habitat.<sup>67</sup> But while the concept of "critical habitat" would soon be rec-

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<sup>61</sup> 119 CONG. REC. 25,675 (1973) (statement of Sen. Williams).

<sup>62</sup> H.R. REP. NO. 93-412 at 4 (1973).

<sup>63</sup> President Nixon's Statement on Signing the Endangered Species Act of 1973, 374 PUB. PAPERS 1027, 1027-28 (Dec. 28, 1973).

<sup>64</sup> 16 U.S.C. § 1531(a)(3) (2000) ("The Congress finds and declares that . . . [species threatened with extinction] are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people . . .").

<sup>65</sup> See S. REP. NO. 93-307 at 2 (1973), *reprinted in* 1973 U.S.C.C.A.N. 2989, 2990 ("The two major causes of extinction are hunting and destruction of natural habitat."); 119 CONG. REC. 19,138 (1973) ("One of the primary causes [of the decline of wildlife populations] is the destruction of their natural habitat. As civilization spreads and more and more open spaces are cleared to make way for urbanization, the areas available for wildlife propagation dwindle accordingly."); 119 CONG. REC. 30,528 (1973) ("The new law recognizes that the greatest threat to endangered animals has been man's destruction of their habitat."); 119 CONG. REC. 25,676 (1973) ("One of the major causes of the decline in wildlife populations is the destruction of their habitat."); 119 CONG. REC. 30,162 (1973) ("For the most part, the principal threat to animals stems from the destruction of their habitat."). See also NAT'L RESEARCH COUNCIL, SCIENCE AND THE ENDANGERED SPECIES ACT 7 (1995) (confirming the importance of habitat conservation in endangered species protection).

<sup>66</sup> 16 U.S.C. § 1531(b) (2000) ("The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . .").

<sup>67</sup> 16 U.S.C. § 1536(a)(2) (2000). The original statute as enacted in 1973 referred simply to "modification of habitat," without the adjective "adverse." Pub. L. No. 93-205, § 7, 87 Stat. 892 (1973). The adjective "adverse" was added in 1978. Endangered Species Act Amendments of 1978, Pub. L. No. 95-632, § 7, 92 Stat. 3751 (Nov. 10, 1978).

ognized as one of the most potent and controversial aspects of the Act, this unelaborated provision in Section 7 was the only reference to it in the original ESA. The Act contained neither a definition of the term nor any process for the designation of critical habitat. Nor was the concept further defined or discussed in the legislative history.<sup>68</sup> When the ESA came back to Congress five years later, however, critical habitat received considerable attention.

### C. The 1978 Amendments

#### 1. Economic Considerations Gain Their First Foothold

Soon after passage of the Act, its potential to significantly hamper economic development quickly become apparent.<sup>69</sup> In 1976, the Fifth Circuit issued a decision enjoining construction of a five-mile section of Interstate 10 through an area that had been designated critical habitat for the endangered Mississippi sandhill crane.<sup>70</sup> FWS declared that construction of an electric generating plant on the Virgin River in Utah would jeopardize the continued existence of the endangered roundfin minnow.<sup>71</sup> And the listing of the Furbish lousewort—a relative of the snapdragon growing along the banks of the Saint John River in northern Maine—threatened to derail a \$1.3 billion dam project.<sup>72</sup> But the most notorious controversy spawned by the newly enacted statute involved the \$100 million Tellico Dam project in Tennessee, which threatened to flood the critical habitat of a small, inedible, and unappealing fish called the snail darter.

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<sup>68</sup> See James Salzman, *Evolution and Application of Critical Habitat under the Endangered Species Act*, 14 HARV. ENVTL. L. REV. 311, 315 (1990).

<sup>69</sup> Although sparking virtually no controversy when originally passed, the ESA quickly became “a lightning rod for politics, passions, and philosophizing.” Zygmunt J. B. Plater, *The Embattled Social Utilities of the Endangered Species Act—A Noah Presumption and Caution against Putting Gasmasks on the Canaries in the Coalmine*, 27 ENVTL. L. 845 (1997).

<sup>70</sup> See *Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359 (5th Cir. 1976). The highway was eventually built following a negotiated settlement of the litigation. See YAFFEE, *supra* note 36, at 164.

<sup>71</sup> See *Endangered Species Act Authorization: Hearing on H.R. 10883 Before the House Subcomm. on Fisheries and Wildlife Conservation and the Environment*, 95th Cong. 462–76 (1978) [hereinafter *ESA Authorization Hearing*]. At the time of the congressional hearings, the entire reach of the Virgin River had also been proposed as critical habitat for the minnow, and FWS's biological opinion indicated that the proposed project would also adversely modify this habitat in violation of Section 7. *Id.* at 464–66.

<sup>72</sup> See *id.* at 385–90. See also 124 CONG. REC. 21,146 (1978) (“I understand also that the Dickey-Lincoln Dam, a Corps of Engineers project in Maine, was and perhaps still is threatened because of the existence of a useless plant known as the Furbish lousewort.”) (statement of Sen. Stennis). This controversy was resolved—at least temporarily—when President Carter put the dam project on hold. *ESA Authorization Hearing*, *supra* note 71, at 386.

This controversy reached the U.S. Supreme Court in 1978, just five years after the ESA's enactment.<sup>73</sup> In what is perhaps the most dramatic decision in U.S. environmental law, the Supreme Court read the ESA's language literally and issued a ringing endorsement of its absolutist approach. Upholding the Sixth Circuit's injunction against the dam, the Court held that Section 7 of the Act imposes an affirmative command on federal agencies that "admits of no exception."<sup>74</sup> The Supreme Court made clear that this was not a statute that directed—or even permitted—agencies to make decisions based on a weighing of costs and benefits. In the Court's view, the ESA's commands were clear and absolute: "The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost."<sup>75</sup>

The Tellico Dam case generated considerable public controversy, spurring newspaper editorials calling for reform and hearings on Capitol Hill.<sup>76</sup> Some in Congress were outraged by the Supreme Court's decision<sup>77</sup> and sought changes to what they viewed as an overly rigid Section 7 process.<sup>78</sup> At a House subcommittee hearing, Representative Duncan (from the Tennessee district in which Tellico was located) decried "the inflexible and unreasonable manner in which the Endangered Species Act is presently being interpreted."<sup>79</sup> Senator Stennis complained on the floor of the Senate about the "absurd and unreasonable results which can come about under the existing law as construed by the Supreme Court."<sup>80</sup> Oth-

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<sup>73</sup> *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978).

<sup>74</sup> *Id.* at 173.

<sup>75</sup> *Id.* at 184. In an earlier decision denying an injunction against a dam project, the Eighth Circuit had suggested that federal agencies could employ a cost-benefit or interest balancing test in making determinations under the ESA. *See Sierra Club v. Froehke*, 534 F.2d 1289, 1305 (8th Cir. 1976).

At oral argument before the Supreme Court in *TVA v. Hill*, the government argued that the ESA required a cost-benefit balancing approach: "So that's the issue that is presented, the issue that must be resolved: Can't there be a balancing of the equitable factors in deciding whether this action taken in the meaning of the statute can be taken." Transcript of Oral Argument, Attorney General Griffin Bell, 437 U.S. 153 (1978) (No. 76-1701).

Although the case was not submitted to the Supreme Court on these terms, the cost-benefit justification for the Tellico Dam was actually shaky at best. *See ZYGMUNT J. B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY* 674–78 (2d ed. 1998). Congress hesitated to authorize it in the first place on those grounds, and the Endangered Species Committee ultimately refused to grant an exemption for the dam, concluding that the project did not survive a cost-benefit test. *See id.* at 683–84.

<sup>76</sup> The House Subcommittee on Fisheries and Wildlife Conservation and the Environment began discussing amendment of the ESA to make it more "flexible" almost as soon as the Sixth Circuit injunction against the Tellico Dam came down. *See Endangered Species Act Authorization*, H.R. 4741, 95th Cong. (1978).

<sup>77</sup> 124 CONG. REC. 21,142 (daily ed. July 17, 1978) (statement of Sen. Nelson) (noting that Supreme Court's decision in *TVA v. Hill* had "caused a national uproar over the Endangered Species Act").

<sup>78</sup> *ESA Authorization Hearing*, *supra* note 71, at 52.

<sup>79</sup> *Id.* at 53 (1978).

<sup>80</sup> 124 CONG. REC. 21,146 (daily ed. July 17, 1978) (statement of Sen. Stevens); *see also id.* at 21,139 (statement of Rep. Scott) (arguing that 1973 Act "neglected to give sufficient emphasis to our own welfare, to the fact that mankind is superior to animal and

ers defended the statute, pointing out that of the 4,500 consultations that had already occurred under Section 7, only three had resulted in litigation, and only one of those lawsuits, *TVA v. Hill*, had actually prevented a project from going forward.<sup>81</sup>

The Senate considered several amendments that would have radically altered the ESA's approach by replacing Section 7's absolute, biologically based jeopardy and adverse modification standards with an economic balancing test.<sup>82</sup> These attempts were rejected, however. Congress ultimately opted to keep the basic structure and approach of the 1973 Act in place,<sup>83</sup> instead adding two escape valves that allow biological considerations to be balanced against economic factors in certain limited circumstances.<sup>84</sup> First, in hopes of avoiding future impasses like that created by the Tellico Dam controversy, Congress added a provision creating an Endangered Species Committee, popularly dubbed the "God Squad," with the power to grant exemptions from Section 7 for certain large and con-

plant life" and warning that ESA threatened to "jeopardize the welfare of mankind"); 123 CONG. REC. 38,164 (daily ed. Nov. 30, 1977) (statement of Rep. Watkins) ("There is a serious possibility that a mutation or long-distant cousin of the snail darter or something in my district will prevent any type of economic growth for our people.").

<sup>81</sup> See 124 CONG. REC. 21,142-43 (daily ed. July 17, 1978) (statement of Sen. Nelson). See also 124 CONG. REC. 38,126 (1978) (statement of Rep. Dingell) (disputing idea that ESA "puts the interest of 'obscure' species ahead of the interests of man," arguing that it instead "puts foremost . . . the long-term interest of human[s] . . . [in] a habitable environment"); 124 CONG. REC. 21,131 (daily ed. July 17, 1978) (statement of Rep. Culver) (calling ESA "one of the most significant and profound laws adopted by our Nation.").

<sup>82</sup> One amendment would have directed federal agencies to "balance the social, cultural, economic, and other benefits to the public if such action is carried out as planned against the esthetic, ecological, educational, historical, recreational, or scientific loss to the public which would occur if such species were to become extinct." 124 CONG. REC. 21,146 (1978); see also *id.* at 21,285 (full text of amendment). Another proposed amendment would have qualified federal agencies' Section 7 obligations with the words "insofar as practicable and consistent with their primary purposes." 124 CONG. REC. 21,565, 21,573 (July 19, 1978).

<sup>83</sup> See H.R. REP. NO. 95-1625, at 14 (Sept. 25, 1978) ("The bill attempts to retain the basic integrity of the Endangered Species Act, while introducing some flexibility which will permit exemptions from the Act's stringent requirements."); *id.* at 13 ("The evidence developed at these hearings suggests that the consultation process can resolve many if not most of the conflicts that might develop under the Act. The committee believes that the popular press has grossly exaggerated the potential for conflict under the Act."); 124 CONG. REC. 38,132 (daily ed. July 17, 1978) (statement of Rep. Murphy) ("[T]he Endangered Species Act is basically sound . . ."); 124 CONG. REC. 38,133 (daily ed. Oct. 14, 1978) (statement of Rep. Leggett) ("[T]he Endangered Species Act has worked fairly well."); 124 CONG. REC. 38,134 (daily ed. Oct. 14, 1978) (statement of Rep. Leggett) ("H.R. 14104 retains the act's stringent mandate."); 124 CONG. REC. 38,126 (Oct. 14, 1978) (statement of Rep. Dingell) ("There is no question that the act is a good act and for the most part it has worked."); 124 CONG. REC. 21,132 (July 17, 1978) (statement of Sen. Culver) ("It is not possible to overstate the importance of keeping the Endangered Species Act strong. Enlightened self-interest requires that we do our best to preserve these species which have evolved over millions and billions of years. We owe it to our children and grandchildren to pass on to them a world that is intact.").

<sup>84</sup> See 124 CONG. REC. 38,126 (Oct. 14, 1978) (statement of Rep. Dingell) (noting that amendments "represent a qualification of the mandatory duties prescribed by the 1973 act" but a "qualification [that] is carefully limited").

roversial projects if “the benefits of [the] action clearly outweigh” the costs of protecting the species.<sup>85</sup> Second, Congress added a provision introducing economic considerations into the critical habitat designation process.<sup>86</sup>

In the two-and-a-half decades since their enactment, however, neither of these provisions has played a particularly significant role in the administration of the ESA. The “God Squad” provision has had little effect because it is infrequently invoked, and even on the handful of occasions on which the Endangered Species Committee has been convened, it has never granted a wholesale exemption from the ESA’s protections on the basis of cost-benefit analysis.<sup>87</sup> And, as Part III.D explains, the provision requiring economic analyses of critical habitat designations has also had little impact, at least until very recently, both because FWS has failed to designate critical habitat for most species and because its approach to performing the few economic analyses it has done has virtually assured a finding that the critical habitat designation will impose no significant economic costs. Before getting to the story of FWS’s implementation, however, the next Section explores in more detail the changes Congress made in 1978 to the critical habitat provisions of the Act.

## 2. *Critical Habitat Survives*

In the 1978 debate over the ESA, many were particularly concerned about Section 7’s prohibition on the adverse modification of critical habitat.<sup>88</sup> Development interests had begun to recognize this provision’s

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<sup>85</sup> 16 U.S.C. § 1536(e), (g)–(n) (2000). The Committee must also find that “there are no reasonable and prudent alternatives,” “the action is of regional or national significance,” and there has been no “irreversible or irretrievable commitment of resources.” *Id.* § 1536(h). Ironically, when the Tellico Dam project came before the “God Squad,” the committee refused to grant an exemption, finding that the project could not be justified on economic grounds. *See supra* note 75.

<sup>86</sup> 16 U.S.C. § 1533(b)(2) (2000).

<sup>87</sup> The Endangered Species Committee was convened during the height of the spotted owl controversy in the Pacific Northwest to consider a request by the Bureau of Land Management (“BLM”) to exempt forty-four planned sales of old-growth timber on BLM lands from the ESA. The committee granted an exemption for thirteen of the forty-four sales, but in a challenge by environmental groups charging inappropriate lobbying of committee members by the White House, the Ninth Circuit reversed and remanded the decision to the Committee. *See Northern Spotted Owl ESA Exemptions*, 52 *FED. REG.* 23,405, 23,406 (June 3, 1992) (granting exemptions); *Portland Audubon Soc’y v. Endangered Species Comm.*, 984 F.2d 1534 (9th Cir. 1993) (reversing Committee decision). Before the Committee could convene again, BLM—by this time under the direction of the Clinton Administration—withdrawed its request for the exemption. The only other project to receive an exemption from the “God Squad” was the Gray Rocks Dam in Wyoming, but that exemption was specifically conditioned on modifications to the project that prevented it from causing jeopardy to the endangered whooping crane. *See BEAN & ROWLAND, supra* note 7, at 264–65, n.337.

<sup>88</sup> *See, e.g.*, 124 *CONG. REC.* 38,132 (1978) (statement of Rep. Murphy) (“The designation of critical habitat amounts to nothing less than a form of restricted zoning from Washington, D.C.”).

potential as a potent weapon against development.<sup>89</sup> The Tellico Dam decision had turned on FWS's finding that completion of the dam would adversely modify the snail darter's critical habitat. And FWS's eleventh hour designation of critical habitat for the Mississippi sandhill crane was credited by many as having swayed the Fifth Circuit to issue an injunction against construction of Interstate 10.<sup>90</sup> Some feared that if some flexibility was not introduced into the designation process, the entire country would soon be designated critical habitat.<sup>91</sup> Thus, much of the push for "reform" that led to the 1978 amendments stemmed from a fear that widespread critical habitat designations could stymie development.<sup>92</sup>

Despite a strong push to weaken this aspect of the Act, however, the concept of critical habitat survived the 1978 amendments and subsequent amendments largely intact. As noted above, the 1973 Act had made no mention of critical habitat beyond Section 7's directive to federal agencies to avoid destruction or adverse modification "of habitat . . . determined by the Secretary . . . to be critical."<sup>93</sup> In 1978, Congress filled that gap by adding several provisions relating to critical habitat. Of most relevance here, of course, is the addition of economic considerations to the

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<sup>89</sup> This fear of critical habitat continues today. Recently, twenty-two counties in the northern Great Plains states passed resolutions opposing critical habitat designation for the Northern Great Plains breeding population of the piping plover. Northern Plains Piping Plover Critical Habitat Designation, 67 Fed. Reg. 57,638, 57,673 (Sept. 11, 2002).

<sup>90</sup> National Wildlife Fed'n v. Coleman, 529 F.2d 359 (5th Cir. 1976).

<sup>91</sup> For example, the following colloquy took place on the House floor during debates on the 1978 amendments:

Mr. Buchanan: I doubt if there is a single district in the United States that does not have one or more mutations of small minnow-like fish about which the same standards could apply, and they would be in as much trouble as my district.

Mr. Bevell: In other words, it could actually paralyze the construction of needed projects in every district in this country?

Mr. Buchanan: There is no question about it.

124 CONG. REC. 38,128 (1978); *see also* 124 CONG. REC. 21,146 (1978) (statement of Sen. Stennis) ("It is conceivable then that virtually every river, stream, hillside and field may contain a unique species or subspecies of life. Therefore, it is possible that virtually any project could be stopped in its tracks if the opponents just look hard enough for a unique animal or plant in the area. You may be sure that they will do so."); *see also* H.R. REP. NO. 1625, at 25, *reprinted in* U.S.C.C.A.N. 9453 ("[T]he existing regulatory definition could conceivably lead to the designation of virtually all of the habitat of a listed species as its critical habitat."); S. REP. NO. 874, at 10 (1978) ("[The existing regulatory definition] substantially increase[s] the amount of area involved in critical habitat designation and therefore increase[s] proportionately the area that is subject to the regulations and prohibitions which apply to critical habitats.").

<sup>92</sup> Earlier that year, FWS had summarily rejected a suggestion that it include in the criteria for designating critical habitat "socioeconomic or cultural factors unrelated to the biological needs of a listed species." Critical Habitat Definitions, 43 Fed. Reg. 870, 872 (1978). The agency called those factors "irrelevant" and limited the critical habitat determination solely to the "biological and ecological needs of the listed species." *Id.* Some in Congress wanted the statute to be amended to overrule this agency interpretation. *Id.*

<sup>93</sup> 16 U.S.C. § 1536(a)(2) (2000).

critical habitat designation process. The relevant provision is contained in Section 4(b)(2) of the Act:

The Secretary shall designate critical habitat . . . on the basis of the best scientific data available and after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.<sup>94</sup>

While this provision certainly weakens the absolutist mandate of the statute by allowing the Secretary to exclude areas from critical habitat on the grounds that economic costs outweigh biological benefits, it does not *require* her to do so. The duty to *consider* economic and other relevant impacts is mandatory, but the Secretary retains discretion as to whether to actually exclude any areas from critical habitat on the basis of economic impacts. Additionally, the Secretary's discretion is not unbounded. The absolutist mission of the ESA reappears to put a brake on economic balancing if failure to designate an area as critical habitat will result in extinction.

While giving the Secretary some flexibility to consider economic factors in designating critical habitat, the 1978 amendments also constrained the Secretary's discretion to delay critical habitat designations. In response to concerns that FWS was dragging its feet, having designated critical habitat for less than thirteen percent of listed species,<sup>95</sup> Congress added a provision directing the Secretary to issue critical habitat designations concurrently with listings "to the maximum extent prudent."<sup>96</sup>

Congress also added a definition of critical habitat to the statute that simultaneously narrowed and expanded the concept. In the absence of a statutory definition in the original act, FWS had issued regulations defining critical habitat as "any air, land, or water area . . . the loss of

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<sup>94</sup> 16 U.S.C. § 1533(b)(2) (2000).

<sup>95</sup> *Amending the Endangered Species Act of 1973: Hearings on S. 2899 Before the Subcomm. on Resource Protection of the Senate Comm. on Environment and Public Works*, 95th Cong., 2d Sess. 17 (1978) (statement of Lynn Greenwalt, Director, U.S. Fish and Wildlife Service).

<sup>96</sup> 16 U.S.C. § 1533(a)(3) (2000). Congress amended this qualification in 1982 to state "to the maximum extent prudent *and determinable*." Endangered Species Act Amendments of 1982, Pub. L. No. 97-304, § 2(a)(1)(E), 96 Stat. 1411, 1411 (1982) (emphasis added). Interestingly, much of the push to avoid delays in critical habitat designations came from development interests that faced considerable expenses due to the regulatory uncertainty created by such delays.

which would appreciably decrease the likelihood of the survival and recovery of a listed species.”<sup>97</sup> Concerned that FWS’s expansive reference to “any air, land, or water area” might ultimately lead to the whole country being designated as critical habitat,<sup>98</sup> Congress narrowed the definition to “specific areas . . . essential to the conservation of the species,”<sup>99</sup> and expressly stated that critical habitat “shall not” include the entire geographical area which can be occupied by the species, except on an express determination by the Secretary.<sup>100</sup> Thus, Congress’s new definition narrowed the geographic scope of critical habitat but, as explained below in Part III.D.1, it also expanded critical habitat’s conceptual scope by linking it to the broad concept of “conservation,” rather than mere “survival.”<sup>101</sup>

While the introduction of economic analysis to the critical habitat designation process marked a significant retreat from the original absolutism of the ESA,<sup>102</sup> Congress did not go nearly as far as it might have. It could easily have removed critical habitat from the ESA entirely, or extended economic balancing to the whole Act. But Congress chose instead to retain critical habitat as a distinct concept and limit the influence of

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<sup>97</sup> Critical Habitat Definitions, 43 Fed. Reg. 870, 874–75 (Jan. 4, 1978).

<sup>98</sup> See *supra* note 91.

<sup>99</sup> 16 U.S.C. § 1532(5)(A) (2000). The full definition reads:

The term “critical habitat” for a threatened or endangered species means—  
(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 1533 of this title, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and  
(ii) specific areas outside the geographical areas occupied by the species at the time it is listed in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species.

<sup>100</sup> *Id.* § 1532(5)(C) (2000). The House Report emphasized this point: “The committee believes . . . that the Secretary should be exceedingly circumspect in the designation of critical habitat outside of the presently occupied area of the species.” H.R. REP. NO. 95-1625 at 18 (1978).

<sup>101</sup> See 16 U.S.C. § 1532(5)(A)(i)(I) (2000) (referencing areas “essential to the conservation of the species”). The ESA defines “conservation” as “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary,” a broader concept than “survival,” to which the old FWS definition was linked. *Id.* § 1532(3). For a more detailed discussion, see *infra* notes 115–128 and accompanying text.

<sup>102</sup> Indeed, the House Committee on Merchant Marine and Fisheries had this to say about the amendment:

As currently written, the critical habitat provision is a startling section which is wholly inconsistent with the rest of the legislation. It constitutes a loophole which could readily be abused by any Secretary of the Interior who is vulnerable to political pressure, or who is not sympathetic to the basic purposes of the . . . Act.

H.R. REP. NO. 95-1625, at 69 (1978), reprinted in 1978 U.S.C.C.A.N. 9453, 9483.

economic factors to a discretionary determination by FWS in the designation process.<sup>103</sup> Biology remained (and remains) paramount in the listing process and in the jeopardy and adverse modification determinations. Indeed, when in the early years of the Reagan administration FWS implemented a practice of applying cost-benefit analysis to listing decisions pursuant to Executive Order 12,291, Congress wasted no time in correcting the agency's overreaching. As part of the 1982 amendments, Congress added the word "solely" to the clause directing the Secretary to base listing determinations "on the basis of the best scientific and commercial data available"<sup>104</sup> in order to make clear that the listing standard remained absolute and that "economic considerations have no relevance to [listing] determinations."<sup>105</sup>

Even though Congress retained the concept of critical habitat, however, throughout the 1980s and much of the 1990s, these provisions had very little real-world impact. Aware that critical habitat designations would inevitably generate controversy and that the economic analyses had the potential to drain substantial resources from agency coffers, FWS did everything it could to avoid implementing this aspect of the Act. As a result, the economic analysis requirement went largely unnoticed for many years.

*D. Under FWS's Policy of Non-Implementation, Economic Analysis Has Minimal Impact*

FWS has never been shy about expressing its dislike of the critical habitat provisions of the ESA. In a 1997 final rule designating critical habitat for the southwestern willow flycatcher, for example, the agency had this to say:

Designation of critical habitat for endangered or threatened species has been among the most costly and controversial classes of

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<sup>103</sup> See Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 298 (1993) (noting that Congress in 1978 "chose to retain critical habitat as a separate consideration and protection required by the Act" and citing H.R. REP. NO. 95-1625, at 19 (1978), reprinted in 1978 U.S.C.C.A.N. 9453, 9469 ("Section 7(c)(1) requires that Federal agencies insure that their actions do not result in: (1) jeopardy to the continued existence of an endangered or threatened species; or (2) the destruction or adverse modification of any critical habitat of any such species.")).

<sup>104</sup> 15 U.S.C. § 1533(b)(1)(A) (2000).

<sup>105</sup> H.R. REP. NO. 97-567, at 20 (1982), reprinted in 1982 U.S.C.C.A.N. 2807, 2820. See BEAN & ROWLAND, *supra* note 7, at 206 n.66 (addition of word "solely" was intended by Congress "as a direct slap at the performance of the Reagan Administration and in particular its application to the listing process of [cost-benefit analysis] under Executive Order 12291"). Congress was concerned that listings had "virtually ground to a halt under [the Reagan] administration because of the linking of the review of the biological status of a species to the economic analysis required under the act to designate critical habitat." 128 CONG. REC. 12957 (1982) (Statement of Rep. Breaux).

administrative actions undertaken by the Service in administering the Act. Over 20 years of experience in designating critical habitat and applying it as a tool in conserving species leads the Service to seriously question its utility and the value it provides in comparison to the monetary, administrative, and other resources it absorbs. Although the Service is, in this case, designating critical habitat pursuant to a Court order that requires the Service to make a final determination, the Service believes that critical habitat is not an efficient or effective means of securing the conservation of species.<sup>106</sup>

Thus, when faced with the task of implementing these powerful and controversial provisions of the Act, FWS punted.<sup>107</sup> Rather than face head-on the thorny political problems that implementation of these provisions would pose, the agency effectively rewrote the statute through regulatory definitions to essentially eliminate any separate protection provided by critical habitat, over and above that already provided by the listing of a species. Having written critical habitat out of the Act, FWS then used its irrelevance as a justification for declining to designate critical habitat for the vast majority of listed species. Since critical habitat was so rarely designated, FWS seldom had to prepare economic analyses. But even in those rare instances when critical habitat was designated, FWS's regulatory interpretation operated to ensure that the economic analysis was inconsequential. After all, if critical habitat designation itself provided no protections over and above those already provided by listing, how could critical habitat designation have any appreciable economic impact? Thus, until the Tenth Circuit's decision in *Cattle Growers*, the few economic analyses the agency produced did little more than summarily cite this logic as a basis for concluding that the economic impacts of critical habitat designation were not significant.<sup>108</sup>

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<sup>106</sup> Southwestern Willow Flycatcher Critical Habitat Designation, 62 Fed. Reg. 39,129, 39,131 (July 22, 1997). See also Vernal Pool Crustaceans and Plants Critical Habitat Designation, 68 Fed. Reg. 46,683, 46,683 (Aug. 6, 2003) (complaining that critical habitat designation is "driven by litigation rather than biology, consumes enormous agency resources, and imposes huge social and economic costs"); 46 Hawaiian Plant Species Critical Habitat Designation, 68 Fed. Reg. 39,624 (July 2, 2003) (same); U.S. Dep't of Interior, *News Release: Endangered Species Act "Broken"—Flood of Litigation over Critical Habitat Hinders Species Conservation* (May 28, 2003), available at [http://endangered.fws.gov/criticalhabitat/ch\\_pressrelease.pdf](http://endangered.fws.gov/criticalhabitat/ch_pressrelease.pdf) ("Conserving habitat is essential for endangered species, but critical habitat as mandated by ESA frustrates that goal.") (last visited Dec. 5, 2003); Salzman, *supra* note 68, at 335–38 (describing bureaucratic resistance to critical habitat within FWS).

<sup>107</sup> See Petersen, *supra* note 41, at 486 ("In the wake of *Tennessee Valley Authority v. Hill*, FWS began to exercise its discretion to avoid controversy, even if that meant circumventing section 4.").

<sup>108</sup> At the time *Cattle Growers* was decided in 2001, FWS had excluded areas from critical habitat designation for economic reasons only once. See Northern Spotted Owl Critical Habitat Designation, 57 Fed. Reg. 1796, 1811 (Jan. 15, 1992).

### 1. Defining Critical Habitat into Oblivion

Section 7 of the ESA clearly imposes two distinct duties on federal agencies. They must “insure” that their actions are not likely to (1) “jeopardize the continued existence” of a threatened or endangered species, or (2) destroy or adversely modify the species’s critical habitat.<sup>109</sup> The statute does not define “jeopardy” or “adverse modification,” leaving that task to the agencies.

In January 1978, less than a year before Congress amended the statute, FWS promulgated its first set of regulations under the ESA. These regulations defined the “jeopardy” and “adverse modification” standards in virtually identical terms. An action was deemed to “jeopardize the continued existence” of a species if it “reasonably would be expected to reduce the reproduction, numbers, or distribution of a listed species to such an extent as to *appreciably reduce the likelihood of the survival and recovery of that species in the wild.*”<sup>110</sup> An action was deemed to destroy or adversely modify critical habitat if it “*appreciably diminishe[d] the value of that habitat for survival and recovery of a listed species.*”<sup>111</sup>

Under these definitions, the adverse modification standard lost any meaning independent of the jeopardy standard.<sup>112</sup> It is difficult to imagine an action that would “appreciably diminish the value of habitat for survival and recovery” without also “appreciably reducing the likelihood of the species’s survival and recovery.” Thus, adverse modification became a subset of jeopardy, and critical habitat became a nullity. Under these standards, designation of critical habitat appears never to provide any additional protection to a species above and beyond that provided by the listing itself, because any federal action that would be prohibited because it would adversely modify critical habitat would have already been prohibited under the jeopardy standard anyway. Indeed, the agency acknowledges that this is the effect of its regulations.<sup>113</sup>

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<sup>109</sup> 16 U.S.C. § 1536(a)(2) (2000).

<sup>110</sup> Critical Habitat Definitions, 43 Fed. Reg. 870, 875 (Jan. 4, 1978) (emphasis added) (codified at 50 C.F.R. § 402.02 (1978)).

<sup>111</sup> *Id.* (emphasis added).

<sup>112</sup> See *Cattle Growers*, 248 F.3d at 1283 (“[T]he standards are defined as virtually identical, or, if not identical, one (adverse modification) is subsumed by the other (jeopardy).”); *American Rivers v. Nat’l Marine Fisheries Serv.*, 1999 U.S. App. LEXIS 3860, at \*5 (9th Cir. Jan. 11, 1999) (“‘Jeopardy’ and ‘critical habitat’ . . . are ‘closely related,’ . . . and the jeopardy discussion properly ‘encompasses’ the critical habitat analysis.”). But see *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d 434, 441 (5th Cir. 2001) (“The mere fact that both definitions are framed in terms of survival and recovery does not render them equivalent. . . . [A]ctions that diminish the ‘value of critical habitat’ for survival and recovery . . . conceivably possess a more attenuated relationship to the survival and recovery of the species” than actions that directly reduce the likelihood of survival and recovery.).

<sup>113</sup> Critical Habitat Clarifications, 64 Fed. Reg. 31,871, 31,872 (proposed June 14, 1999) (“According to our interpretation of the regulations, by definition, the adverse modification of critical habitat consultation standard is nearly identical to the jeopardy consultation standard. . . . [As a result] the designation of ‘official’ critical habitat is of

This merging of the two Section 7 standards is difficult to square with congressional intent as reflected in the language and structure of the statute. While there must be some overlap between the “jeopardy” and “adverse modification” standards, it seems equally clear that in order to give some meaning to the critical habitat provisions of the ESA, the “adverse modification” standard must add something to Section 7 that is not already provided by the “jeopardy” standard. By defining the two standards in virtually identical terms, however, FWS has rendered the adverse modification language of Section 7, and indeed the entire concept of critical habitat, superfluous, a result that is at odds with basic principles of statutory construction.<sup>114</sup>

The definitions create another tension with the statutory language as well. Both definitions turn on an action’s effects on both “survival *and* recovery.” Thus, an action that appreciably reduced the likelihood of recovery but had no impact on the likelihood of survival would not satisfy either definition. For example, destruction of currently unoccupied habitat might not actually reduce a species’s likelihood of survival since it would not directly affect currently living individuals. It might, however, reduce the likelihood that a species would expand to colonize additional habitat and thereby reach population levels that would allow it to recover to the point where it is no longer endangered. Under these circumstances, habitat destruction would not meet the definition of adverse modification since it would not threaten the actual survival of the species.

The current regulations’ focus on actions that affect both survival and recovery was also reflected in FWS’s original regulatory definition of critical habitat as “any air, land, or water area . . . the loss of which would appreciably decrease the likelihood of the *survival and recovery* of a listed species. . . .”<sup>115</sup> In the 1978 amendments to the ESA, however,

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little additional value for most listed species.”); *accord* Rio Grande Silvery Minnow Critical Habitat Designation, 64 Fed. Reg. 36,274, 36,278 (July 6, 1999) (“[Agency actions] likely to adversely modify critical habitat but not to jeopardize the species for which it is designated are extremely rare historically and none have been issued in recent years.”). The only exception to this that FWS acknowledges is the designation of unoccupied habitat as critical. *See* Critical Habitat Clarifications, 64 Fed. Reg. at 31,872. Such designations, however, rarely occur.

While FWS’s definitions do seem to render critical habitat a nullity from a theoretical perspective, it is not at all clear as a practical matter that critical habitat provides no added value to species. Indeed, considerable evidence points in the other direction. *See infra* notes 160–173 and accompanying text. A recent analysis of data submitted to Congress by FWS on species population trends concludes that “critical habitat has a distinct, beneficial effect on species recovery, independent of, and additive to, the separate beneficial effects of being on the endangered species list and having recovery plans.” The study found that species with critical habitat were nearly twice as likely to be improving than those without it. Martin Taylor et al., *Critical Habitat Significantly Enhances Endangered Species Recovery* (Oct. 2003), at <http://www.biologicaldiversity.org/swcbd/programs/policy/ch/CHSEER9-2003.pdf> (last visited Dec. 5, 2003).

<sup>114</sup> *See* Houck, *supra* note 103, at 300 (“At this point the regulations are not simply interpretive; they repeal half of section 7(a)(2).”).

<sup>115</sup> Critical Habitat Definitions, 43 Fed. Reg. 870, 874–75 (Jan. 4, 1978) (emphasis

Congress superceded that definition with a statutory definition of its own, which linked critical habitat to the concept of “conservation” instead.<sup>116</sup> The term “conservation” is defined by the statute to mean recovery—“the use of all methods and procedures . . . necessary to bring [a] . . . species to the point at which the measures provided pursuant to this chapter are no longer necessary.”<sup>117</sup> Thus, the statutory definition of critical habitat suggests that even an area that is not actually necessary to the “survival” of a species might still be critical habitat if it is necessary to help the species move beyond mere survival to actual “conservation,” i.e., recovery. This definition also suggests that critical habitat might be adversely modified by an action that affects recovery but not survival. This opens the door to a plausible distinction between the jeopardy and adverse modification standards: an action that impacts a species’s critical habitat so as to threaten its recovery but not its actual survival might cause adverse modification but not rise to the level of actually jeopardizing the continued existence of the species.<sup>118</sup> Based on this logic, some have suggested that FWS should amend the definition of adverse modification to make it more consistent with the statute by replacing the term “survival and recovery” with the word “recovery.”<sup>119</sup> “Adverse modification” would then turn on the concept of “recovery” (or “conservation”) and therefore be distinct from “jeopardy,” which turns on the concept of “survival.”

To this day, however, FWS’s definition of adverse modification remains inconsistent with the statutory definition of critical habitat that Congress added to the ESA in 1978. FWS did not even promulgate regulations implementing the 1978 amendments until 1986,<sup>120</sup> and even then, the new regulations simply quoted the statutory definition of critical habitat. They made a small change to the definitions of jeopardy and adverse modification, but it arguably only exacerbated the tension with the statutory definition of critical habitat. The 1986 regulation inserted the word “both” before the phrase “survival and recovery” in each definition.<sup>121</sup>

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added) (codified at 50 C.F.R. § 402.02 (1978)).

<sup>116</sup> Pub. L. No. 95-632, § 53(a), 92 Stat. 3751-67 (1978); 16 U.S.C. § 1532(5) (2000) (defining “critical habitat” as “(i) the specific areas within the geographical area occupied by the species . . . on which are found those physical or biological features (I) essential to the *conservation* of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species . . . upon a determination by the Secretary that such areas are essential for the *conservation* of the species” (emphasis added)).

<sup>117</sup> 16 U.S.C. § 1532(3) (2000).

<sup>118</sup> See Houck, *supra* note 103, at 300–01; William Snape III, et al., *Protecting Ecosystems Under the Endangered Species Act: The Sonoran Desert Example*, 41 WASHBURN L.J. 14, 20 (2001). *But see* BEAN & ROWLAND, *supra* note 7, at 259 n.317 (arguing that there is no meaningful distinction between the concepts of “survival” and “recovery”).

<sup>119</sup> See Amy Armstrong, *Critical Habitat Designations under the Endangered Species Act: Giving Meaning to the Requirements for Habitat Protection*, 10 S.C. ENVTL. L.J. 53, 71 (2002).

<sup>120</sup> See BEAN & ROWLAND, *supra* note 7, at 258.

<sup>121</sup> Critical Habitat Regulations, 51 Fed. Reg. 19,926, 19,934 (June 3, 1986).

The preamble explained that the word was added, “to emphasize that, except in exceptional circumstances, injury to recovery alone would not [meet these definitions].”<sup>122</sup> The agency further argued “it is difficult to draw clear-cut distinctions” between the concepts of survival and recovery, noting that “[i]f survival is jeopardized, recovery is also jeopardized.”<sup>123</sup> This position, of course, fails to recognize that the converse is not necessarily true: one can imagine an action that jeopardizes recovery without also jeopardizing survival.

In 1992, FWS seemed to momentarily retreat from that position. The critical habitat designation for the northern spotted owl contained a lengthy discussion of the role played by critical habitat in the statute and seemed to carve out separate roles for the jeopardy and adverse modification standards based on the distinct concepts of “survival” and “recovery”:

As a result of the link between critical habitat and recovery, the prohibition against destruction or adverse modification of the critical habitat should provide for the protection of the critical habitat’s ability to contribute fully to a species’ recovery. Thus, the adverse modification standard may be reached closer to the recovery end of the survival continuum, whereas, the jeopardy standard traditionally has been applied nearer to the extinction end of the continuum.<sup>124</sup>

But in subsequent statements the agency has returned to its original position. For example, in a notice published in the Federal Register in 1999, the agency stated that “[f]or almost all species, the adverse modification and jeopardy standards are the same, resulting in critical habitat being an expensive regulatory process that duplicates the protection already provided by the jeopardy standard.”<sup>125</sup>

In 2001, environmental groups succeeded in convincing the Fifth Circuit that FWS’s definition of adverse modification is inconsistent with the statute.<sup>126</sup> The court held that “conservation,” which is the touchstone of the statutory definition of critical habitat, “is a much broader concept than mere survival” and that therefore “[r]equiring consultation only where an action affects the value of critical habitat to both the recovery *and* survival of a species imposes a higher threshold than the statutory language permits.”<sup>127</sup> The decision resulted in a remand of the critical

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<sup>122</sup> *Id.*

<sup>123</sup> *Id.*

<sup>124</sup> Northern Spotted Owl Critical Habitat Designation, 57 Fed. Reg. 1796, 1822 (Jan. 15, 1992).

<sup>125</sup> Critical Habitat Clarifications, 64 Fed. Reg. 31,871, 31,872 (proposed June 14, 1999).

<sup>126</sup> *See* Sierra Club v. U.S. Fish & Wildlife Serv., 245 F.3d 434, 442 (5th Cir. 2001).

<sup>127</sup> *Id.* at 441–42; *see also* Conservation Council for Hawaii v. Babbitt, 2 F. Supp. 2d 1280, 1288–89 (D. Haw. 1998) (rejecting FWS’s finding that critical habitat designation

habitat designation at issue, and FWS reversed its earlier finding that designation of critical habitat for the Gulf sturgeon was “not prudent” because it would provide no additional benefit to the species. But the agency has not yet proposed any change to the definition of adverse modification in response to the Fifth Circuit’s decision.<sup>128</sup>

## 2. *Just Say No: Declining To Designate Critical Habitat*

By depriving the concept of any independent meaning, FWS succeeded for many years in defusing the controversy surrounding critical habitat. Indeed, in many instances FWS avoided designating critical habitat altogether. After all, if critical habitat adds no additional benefit to a species beyond what listing already provides through application of the jeopardy standard, why bother to designate it at all?

FWS justified decisions not to designate critical habitat by invoking the “prudence” and “determinability” exceptions to the designation requirement. The statute requires FWS to designate critical habitat concurrently with a listing decision, but only “to the maximum extent prudent and determinable.”<sup>129</sup> The determinability exception can only be used to delay designation temporarily because it has a built-in time limit: the statute allows the Secretary to delay a critical habitat designation for up

was “not prudent” because the adverse modification standard provides no additional benefit over and above jeopardy).

<sup>128</sup> This is in stark contrast to the agency’s rush to embrace the Tenth Circuit’s decision in *Cattle Growers*. See *infra* note 181 and accompanying text. In a few recent economic analyses, however, FWS has begun acknowledging the Fifth Circuit’s ruling, with the statement that “[a]dverse modification of critical habitat is currently construed as any direct or indirect alteration that appreciably diminishes the value of critical habitat for conservation of a listed species.” See U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE GULF STURGEON 1 (*prepared by Industrial Economics, Inc.*, July 2002) [hereinafter GULF STURGEON EC. AN.]; U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE CACTUS FERRUGINOUS PYGMY-OWL 2 (*prepared by Industrial Economics, Inc.*, Nov. 2002) [hereinafter PYGMY-OWL EC. AN.]. Even more recently, in Federal Register notices announcing critical habitat designations, FWS has been making the following statement: “In response to [the Fifth Circuit’s decision in *Sierra Club v. U.S. Fish & Wildlife Serv.*] we are reviewing the regulatory definition of adverse modification in relation to the conservation of the species.” See, e.g., Vernal Pool Crustaceans and Plants Critical Habitat Designation, 68 Fed. Reg. 46,684, 46,744 (Aug. 6, 2003).

In public statements, however, the agency continues to take the position that critical habitat provides no added protection for species. See Douglas Jehl, *Rare Arizona Owl (All 7 Inches of It) is in Habitat Furor*, N.Y. TIMES, Mar. 17, 2003, at A1 (quoting Craig Manson, Assistant Secretary of the Interior, stating that “[r]ationally speaking, the costs of critical habitat designation add virtually nothing to the protection of the species.”).

<sup>129</sup> 16 U.S.C. § 1533(a)(3) (2000). The 1978 amendments first added the duty to designate critical habitat concurrently with listing “to the maximum extent prudent.” H.R. REP. NO. 95-1625 at 16 (1978), reprinted in 1978 U.S.C.C.A.N. 9453, 9466. In 1982, Congress added the words “and determinable” to ensure that critical habitat designations that required further research did not delay listing decisions. See H.R. Rep. No. 97-567, at 19 (1982), reprinted in 1982 U.S.C.C.A.N. 2807, 2819.

to one year on the ground that it is not “determinable,”<sup>130</sup> but after that, the agency has to make a decision “based on such data as may be available at that time.”<sup>131</sup> The prudency exception is not so limited, but the legislative history makes clear that Congress intended this exception to be invoked only in exceptional circumstances. The House Report accompanying this provision stated:

The committee intends that in most situations the Secretary will, in fact, designate critical habitat at the same time that a species is listed as either endangered or threatened. It is only in *rare circumstances* where the specification of critical habitat concurrently with the listing will not be beneficial to the species.<sup>132</sup>

Nonetheless, throughout the 1980s and 1990s, FWS used these exceptions to avoid designating critical habitat for nearly all the species it listed.<sup>133</sup> By August 2001, FWS had only designated habitat for 138 of the 1244 species then listed as endangered or threatened.<sup>134</sup> FWS justified most of these decisions under the prudency exception.<sup>135</sup> FWS regulations allow a “not prudent” finding in two circumstances: (1) if the designation would increase the threat to the species, or (2) if the designation would not be beneficial to the species.<sup>136</sup> FWS justified many of the early deci-

<sup>130</sup> See 16 U.S.C. § 1533(b)(6)(C) (2000).

<sup>131</sup> 16 U.S.C. § 1533(b)(6)(C)(ii) (2000).

<sup>132</sup> H.R. Rep. No. 95-1625 at 17, reprinted in 1978 U.S.C.C.A.N. 9453, 9467 (emphasis added). In *Sierra Club v. U.S. Fish & Wildlife Serv.*, the Fifth Circuit used this language to support its holding that FWS’s definition of adverse modification violated the statute, reasoning that under the definition “it is less likely that the Services would discern additional benefit from designating critical habitat” and would therefore frequently invoke the “not prudent” exception, and that such a result would be at odds with congressional intent that the “not prudent” exception be invoked only “rarely.” 245 F.3d at 443.

<sup>133</sup> FWS implemented a “de facto policy” of declining to designate critical habitat for listed species on the basis that it was not “prudent.” Rohlf, *supra* note 9, at 117 n.9. According to the Tenth Circuit Court of Appeals, FWS has had a “long held policy position that [critical habitat designations] are unhelpful, duplicative, and unnecessary.” *Cattle Growers*, 248 F.3d at 1283. FWS itself acknowledges this policy. In a critical habitat designation in 1997, FWS stated that “[i]n recent years, the Service has foregone designating critical habitat for most species it has listed on the basis that it would not provide any net benefit to their conservation.” Southwestern Willow Flycatcher Critical Habitat Designation, 62 Fed. Reg. 39,129, 39,131 (July 22, 1997).

NMFS does not follow this same policy and has generally designated critical habitat for species it lists, at least where the species have some terrestrial or near-shore habitat. But NMFS is responsible for far fewer overall listings than FWS. Rohlf, *supra* note 9, at 117 n.9.

<sup>134</sup> Rohlf, *supra* note 9, at 117–18 n.10. This number does not take into account the small number of critical habitat designations issued by NMFS. *Id.* The *Cattle Growers* court observed that “FWS has typically put off [designating critical habitat] until forced to do so by court order.” *Cattle Growers*, 248 F.3d at 1283.

<sup>135</sup> See Houck, *supra* note 103, at 303; Thomas F. Darin, *Designating Critical Habitat Under the Endangered Species Act: Habitat Protection Versus Agency Discretion*, 24 HARV. ENVTL L. REV. 209, 224 (2000).

<sup>136</sup> See 50 C.F.R. § 424.12(a)(1)(i)–(ii) (2002).

sions under the first prong of this test, asserting that identifying a species's critical habitat would allow hunters or collectors access to the species or cause landowners to purposefully kill members of the species or destroy their habitat in an effort to escape the ESA's restrictions. In the early 1990s, however, FWS began making more frequent use of the second prong of the prudency test, arguing that designation would not provide any additional benefit to the species because the adverse modification standard provides no additional protection above that provided by the jeopardy standard.<sup>137</sup>

In the late 1990s, environmental groups began challenging FWS's failure to designate critical habitat in court.<sup>138</sup> These suits were largely successful, with the result that FWS was ordered to designate critical habitat for dozens of species.<sup>139</sup> As the pace of designations increased in response to these lawsuits, the agency began to produce more economic analyses. As the next Section explains, however, these analyses had little impact on the designation process.

### 3. *See No Evil . . . (or Economic Impact)*

Even when FWS has designated critical habitat, the statutorily mandated economic analysis—at least until recently—has had little, if any, impact on the process. This is because FWS's standard conclusion in its economic analyses has been that critical habitat designation will result in no significant economic costs.<sup>140</sup> Accordingly, with the exception of the high profile and controversial designation of critical habitat for the northern spotted owl in 1992, the agency had never, until very recently, excluded an area from a critical habitat designation based on an economic analysis.<sup>141</sup>

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<sup>137</sup> See, e.g., Gulf Sturgeon Critical Habitat Designation, 60 Fed. Reg. 43,721, 43,271–23 (Aug. 23, 1995) (challenged in *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d 434 (5th Cir. 2001)).

<sup>138</sup> See, e.g., *Natural Resources Defense Council v. U.S. Dep't of Interior*, 113 F.3d 1121, 1127 (9th Cir. 1997) (overturning “not prudent” rationale for failing to designate critical habitat for the California gnatcatcher); *Conservation Council for Hawaii v. Babbitt*, 2 F. Supp. 2d 1280, 1288 (D. Haw. 1998) (rejecting FWS's invocation of imprudence as rationale for not designating critical habitat of 245 plant species).

<sup>139</sup> See *Status of Court-Ordered Critical Habitat Actions* (2003), at <http://endangered.fws.gov/criticalhabitat/ch-actions.pdf> (listing court-ordered critical habitat designations) (last visited Dec. 5, 2003). This “flood of litigation” over critical habitat designations has created a large backlog. In May 2003, FWS temporarily suspended critical habitat designations for the remainder of that fiscal year because it had run out of funds. U.S. Dep't of Interior, *News Release: Endangered Species Act “Broken”—Flood of Litigation over Critical Habitat Hinders Species Conservation*, *supra* note 106. The agency contends that critical habitat litigation is forcing it to allocate too much money to designations and preventing it from devoting resources to other more worthy programs. See *id.*

<sup>140</sup> In some cases, the agency has not even bothered to prepare an economic analysis, simply stating its conclusion of no economic impacts in the rule itself. See, e.g., *Salmon and Steelhead Critical Habitat Designation*, 65 Fed. Reg. 7764, 7776 (Feb. 16, 2000).

<sup>141</sup> See *Northern Spotted Owl Critical Habitat Designation*, 57 Fed. Reg. 1796, 1811

The standard finding of no economic impact was not surprising, given FWS's view that critical habitat designation simply doesn't make a difference, i.e., provides no benefit to species over and above listing.<sup>142</sup> In one economic analysis, for the southwestern willow flycatcher, the agency explained its logic this way:

Effects attributable to critical habitat designation can occur only where an action adversely modifies critical habitat but does not jeopardize the species. Given the similar definitions of these two determinations, the Service does not foresee any such situations. . . . Because the Service believes that virtually all section 7 consultations that result in adverse modification of critical habitat will also result in a jeopardy decision, designation of critical habitat for the flycatcher is not expected to result in any incremental restrictions on agency activities. Critical habitat designation will, therefore, result in no additional protection for the flycatcher nor have any additional economic effects beyond those that may have been caused by listing and by other statutes.<sup>143</sup>

Given the agency's view of the statute, the only situation in which critical habitat designation can have any impact over and above that caused by listing is when unoccupied habitat is designated as critical. Indeed, FWS has acknowledged that alteration of unoccupied habitat can result in a finding of adverse modification even in the absence of jeopardy.<sup>144</sup> But since critical habitat designations rarely include much unoccupied habitat, this did not change FWS's summary conclusion in virtually every case that critical habitat designation would result in no significant economic impact.<sup>145</sup> As the next Part explains, however, all of this has begun to change in the wake of the Tenth Circuit's opinion in *Cattle Growers* striking down FWS's approach to economic analyses.

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(Jan. 15, 1992). For recent exclusions, see *infra* note 196.

<sup>142</sup> Strictly speaking, FWS's logic essentially amounted to the proposition that both sides of the cost-benefit balance were zero, since the agency saw no benefit and therefore no cost from designating critical habitat.

<sup>143</sup> U.S. FISH & WILDLIFE SERV., ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SOUTHWESTERN WILLOW FLYCATCHER, S3 (1997) [hereinafter SOUTHWESTERN WILLOW FLYCATCHER EC. AN.].

<sup>144</sup> Critical Habitat Clarifications, 64 Fed. Reg. 31,871, 31,872 (June 14, 1999). Under the current definitions, of course, such a finding requires a determination that the alteration of unoccupied habitat will actually threaten the species's *survival*, unlike the previous hypothetical. See *supra* notes 114–115 and accompanying text.

<sup>145</sup> See *supra* note 141 and accompanying text.

#### IV. CATTLE GROWERS: COST-BENEFIT ANALYSIS IN THE ESA REINVIGORATED

In May 2001, an opinion from the U.S. Court of Appeals for the Tenth Circuit called FWS to task for its less than assiduous approach to the economic analysis of critical habitat designations. In *New Mexico Cattle Growers Association v. United States Fish and Wildlife Service*,<sup>146</sup> the court rejected FWS's method for conducting economic analyses, a method that, in the court's view, virtually guaranteed a finding of no significant economic costs and thus rendered the statute's economic analysis requirement a nullity. In the wake of this decision, FWS has voluntarily remanded dozens of critical habitat designations around the country in order to conduct new economic analyses. This Section examines and critiques the *Cattle Growers* opinion and then looks at some of the economic analyses that have recently been produced by FWS in response to that decision.

##### A. *The Cattle Growers Decision*

*Cattle Growers* invalidated FWS's "baseline approach" to the economic analysis of critical habitat designations, under which the agency considered only the economic impacts of the critical habitat designation itself, over and above any impacts attributable to the listing of the species. Such an approach would likely have been uncontroversial if FWS had viewed critical habitat designation as having any incremental impacts over and above listing.<sup>147</sup> As discussed above, however, FWS defined the adverse modification and jeopardy standards in nearly identical terms and then used the identity of the standards as a basis for concluding that critical habitat designation has no incremental impact. Accordingly, under the "baseline approach," a finding of "no significant economic impact" was virtually a foregone conclusion.

The economic analysis for the southwestern willow flycatcher, challenged in the *Cattle Growers* case, was no exception. The flycatcher is a small bird that nests in riparian areas in the southwestern United States.<sup>148</sup> It was listed as endangered in 1995.<sup>149</sup> FWS, as per its usual practice, declined to designate critical habitat at the time of listing,<sup>150</sup> but a lawsuit by environmental groups resulted in an injunction, and in 1997, FWS finally proceeded with the designation process. By this time, the

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<sup>146</sup> 248 F.3d 1277 (10th Cir. 2001).

<sup>147</sup> See *OMB Guidelines*, *supra* note 31 at III(A)(1) (discussing importance of measuring costs and benefits against a baseline "of the way the world would look absent the proposed regulation").

<sup>148</sup> *Cattle Growers*, 248 F.3d at 1279.

<sup>149</sup> Southwestern Willow Flycatcher Listing, 60 Fed. Reg. 10,694 (Feb. 27, 1995).

<sup>150</sup> The agency invoked the not "determinable" exception. See *id.*

flycatcher population had declined to an estimated 300 to 500 nesting pairs.<sup>151</sup> FWS designated as critical habitat nearly 600 miles of stream and riparian corridor in southern California, Arizona, and New Mexico.<sup>152</sup>

As part of the designation process, FWS prepared an economic analysis pursuant to Section 4(b)(2) of the ESA. Since, in FWS's view, critical habitat by definition has no impact over and above listing, the task was easy. The economic analysis summarily concluded that because all actions "that result in adverse modification of critical habitat will also result in a jeopardy decision, designation of critical habitat for the flycatcher is not expected to result in any incremental restrictions on agency activities" and therefore will result in no economic impact.<sup>153</sup>

A coalition of groups representing New Mexico's agriculture industry challenged the economic analysis and the resulting critical habitat designation in federal court. They lost in the district court, but succeeded in convincing the Tenth Circuit Court of Appeals that FWS's "baseline approach" was "not in accord with the language or intent of the ESA."<sup>154</sup> Observing that FWS's definition of the jeopardy and adverse modification standards in nearly identical terms "renders any purported economic analysis done utilizing the baseline approach virtually meaningless," the court concluded that in order to "give some effect to the congressional directive that economic impacts be considered," the scope of those impacts must be widened.<sup>155</sup> The court accordingly concluded that Congress must have intended for the economic analysis to consider more than just those economic impacts that would not occur "but for" the critical habitat designation, but rather all impacts reasonably attributable to the critical

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<sup>151</sup> Southwestern Willow Flycatcher Critical Habitat Designation, 62 Fed. Reg. 39,129, 39,130 (July 22, 1997).

<sup>152</sup> *Id.* at 39,133.

<sup>153</sup> SOUTHWESTERN WILLOW FLYCATCHER EC. AN., *supra* note 143, at S3. In the critical habitat designation itself, FWS explained further that

[c]ommon to both definitions is an appreciable detrimental effect on both survival and recovery of a listed species, in the case of critical habitat by reducing the value of the habitat so designated. Thus, actions satisfying the standard for adverse modification are nearly always found to also jeopardize the species concerned, and the existence of a critical habitat designation does not materially affect the outcome of consultation. This is in contrast to the public perception that the adverse modification standard sets a lower threshold for violation of section 7 than that for jeopardy. In fact, biological opinions which conclude that a Federal agency action is likely to adversely modify critical habitat but not to jeopardize the species for which it is designated are extremely rare historically, and none have been issued in recent years.

Southwestern Willow Flycatcher Critical Habitat Designation, 62 Fed. Reg. 39,129, 39,131-32 (July 22, 1997).

<sup>154</sup> *Cattle Growers*, 248 F.3d at 1285. A similar argument had been rejected eight years earlier in a case challenging the critical habitat designation for the northern spotted owl. *See Trinity County Concerned Citizens v. Babbitt*, 1993 WL 650393 (D.D.C. Sept. 20, 1993).

<sup>155</sup> *Cattle Growers*, 248 F.3d at 1285.

habitat designation, even if they were attributable co-extensively to other causes, such as the listing. In other words, under the Tenth Circuit's approach, where any economic development activity would trigger both a jeopardy finding and an adverse modification finding, the curtailment of that activity must be considered an economic cost of the critical habitat designation, even though the curtailment would have occurred (because of the listing) even in the absence of critical habitat.<sup>156</sup>

While the Tenth Circuit was understandably concerned that FWS's economic analyses had become an empty formality, by attacking the baseline approach, it indicted the wrong culprit. The problem with FWS's approach to economic analyses was not the baseline approach per se. On the contrary, the baseline approach is the only logically coherent way to approach the analyses. In order to assess the impacts of an action, some baseline must be set to isolate the action being evaluated from background effects. Here, the action being evaluated is critical habitat designation. Accordingly, comparing the world *with* critical habitat against the "baseline" of a world *without* critical habitat is the only sensible way to measure the impacts (economic or otherwise) of a designation.<sup>157</sup> An analysis that does otherwise—for example, an analysis that includes impacts that are caused co-extensively by listing and therefore would also exist in a world without critical habitat—cannot serve the purpose Congress intended. The purpose of the economic analysis, after all, as set forth in the second sentence of Section 4(b)(2), is to determine whether or not to exclude a particular area from a critical habitat designation in order to reduce economic impacts. Certainly, impacts co-extensive with listing that would by definition occur due to the listing even in the absence of a critical habitat designation cannot be mitigated by excluding an area from critical habitat.<sup>158</sup>

The real problem is FWS's unwarranted assumption that critical habitat designation has no impact over and above listing. This assumption represents both an incorrect empirical assessment of the real world impact of critical habitat designations and an incorrect legal interpretation of the ESA. Ironically, the Tenth Circuit recognized and criticized both of these flaws in FWS's approach, but then oddly failed to recognize the full implications of its analysis.<sup>159</sup>

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<sup>156</sup> See *id.* The holding actually referred generically to "impacts . . . attributable co-extensively to other causes," leaving open the possibility that an impact might be caused by both critical habitat designation and some additional environmental restrictions other than the jeopardy standard. *Id.*

<sup>157</sup> FWS's baseline approach was clearly in line with accepted practice for conducting cost-benefit analyses. See *OMB Guidelines*, *supra* note 31, at III(A)(1).

<sup>158</sup> See 16 U.S.C. § 1533(b)(2) (2000). FWS has itself pointed out this inconsistency. See U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SAN BERNARDINO KANGAROO RAT ES-6 (*prepared by Industrial Economics, Inc.*, Aug. 2001) [hereinafter KANGAROO RAT EC. AN.].

<sup>159</sup> The court's refusal to give *Chevron* deference to FWS's "baseline approach" was

First, there is considerable evidence that, even under FWS's current interpretation of the statute, critical habitat designation does make a difference in the real world.<sup>160</sup> This was vividly demonstrated when a federal court recently vacated the 731,000-acre critical habitat designation<sup>161</sup> for the endangered cactus ferruginous pygmy-owl in the rapidly growing Tucson area.<sup>162</sup> The court's ruling left the listing of the owl in place.<sup>163</sup> Nonetheless, the U.S. Army Corps of Engineers and the EPA promptly responded by terminating Section 7 consultations with FWS on several major development projects within the former critical habitat area, allowing them to go forward without the kinds of costly mitigation measures that FWS had previously imposed on similar projects within that area.<sup>164</sup> Thus, in this instance, critical habitat designation seems to have made a significant difference for the pygmy-owl, imposing added restrictions on development, and therefore economic costs, over and above those imposed by listing.<sup>165</sup>

The pygmy-owl example is consistent with Oliver Houck's argument that critical habitat designation "accomplishes a great deal" in practice, even if as a purely legal or intellectual matter, it should not.<sup>166</sup> According to Houck, courts have shown themselves to be far more likely to enjoin development activity in situations where critical habitat has been designated than in situations in which the argument for protection rests solely on the jeopardy standard: "The case law illustrates beyond question . . .

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also questionable. See *Cattle Growers*, 248 F.3d at 1281. Critical habitat designations, after all, are published in the Federal Register and undergo notice and comment rulemaking. See 16 U.S.C. § 1533(b)(4); cf. *United States v. Mead*, 533 U.S. 218 (2001) (notice-and-comment rulemaking indicates congressional intent to delegate authority to the agency to make rules carrying force of law and is therefore entitled to *Chevron* deference). The district court in *Cattle Growers* had accorded *Chevron* deference to FWS, N.M. *Cattle Growers Ass'n v. U.S. Fish & Wildlife Serv.*, 81 F. Supp. 2d 1141, 1159 (D.N.M. 1999), but the government apparently conceded the issue in the court of appeals, see *Cattle Growers*, 248 F.3d at 1281.

<sup>160</sup> See *Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1171-73 (D.N.M. 2000), aff'd, 294 F.3d 1220 (10th Cir. 2002). A recent report analyzing FWS data on population trends of threatened and endangered species submitted to Congress by FWS found that species with critical habitat are nearly twice as likely to have an improving population trend than species without critical habitat. See Taylor, *supra* note 113.

<sup>161</sup> See *Pygmy-Owl Critical Habitat Designation*, 64 Fed. Reg. 37,419 (July 12, 1999).

<sup>162</sup> *Nat'l Ass'n of Home Builders v. Norton*, 2001 WL 1876349 at \*2 (D.Ariz. Sept. 21, 2001).

<sup>163</sup> This listing has since been successfully challenged in *Nat'l Ass'n of Home Builders v. Norton*, 340 F.3d 835, 838 (9th Cir. 2003).

<sup>164</sup> Before the court's ruling, FWS had typically required developers seeking to build in the owl's critical habitat to set aside eighty percent of their property as open space or to purchase four acres of owl habitat for every acre developed. See "Prime Habitat for Pygmy-owl Nearing Critical Point," 7 *Endangered Species & Wetlands Rep.* No. 6 at 10 (Mar. 2002).

<sup>165</sup> FWS has recently acknowledged that critical habitat designation may have had an impact over and above listing on the rate of consultation for the pygmy-owl and has taken that into account in its economic analysis for the owl. See *PYGMY-OWL EC. AN.*, *supra* note 128, at 3-1.

<sup>166</sup> Houck, *supra* note 103, at 308.

that the ESA's prohibition on modification of critical habitat is interpreted by courts as strong and unyielding; the prohibition on jeopardy is viewed as discretionary and flexible.<sup>167</sup> Adverse modification of critical habitat may also be easier to prove from a scientific standpoint. The National Research Council has observed that the adverse modification standard is more objective and amenable to measurement and quantification than the jeopardy standard.<sup>168</sup>

Even though its holding seemed ultimately to rest on an acceptance of FWS's position that critical habitat designation has no incremental impact,<sup>169</sup> the *Cattle Growers* court also criticized that assumption on empirical grounds. As evidence to the contrary, it cited both the district court's unchallenged finding that the Cattle Growers Association had suffered injury-in-fact as a result of the listing,<sup>170</sup> as well as an earlier Tenth Circuit holding that critical habitat designation has significant impacts on the environment and therefore requires an environmental impact statement.<sup>171</sup> But the court stopped short of taking the next logical step. It declined to reject FWS's economic analysis on the grounds that it was arbitrary and capricious for the agency to base its analysis wholly on the unsupported empirical assertion that critical habitat designation has no impacts over and above listing.<sup>172</sup> Instead, asserting cryptically that this was "not the precise question before us,"<sup>173</sup> the court went on to reach the illogical holding described above.

Second, as I argued above in Part III.D.1, the legal interpretation underlying FWS's assumption that critical habitat designation has no impact is flawed as well. Specifically, FWS's interpretation of the adverse modification and jeopardy standards in identical terms is contrary to congressional intent, both because it reads critical habitat out of the statute and because it contradicts the statute's definition of critical habitat,

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<sup>167</sup> *Id.* at 310. At least as of 1993, "no reported judicial opinion [had] approved a litigated intrusion into designated critical habitat," though plenty had approved intrusions that would cause jeopardy. *Id.* See also Salzman, *supra* note 68, at 330 n.88 (quoting justice department lawyers saying the adverse modification standard is easier to prove than the jeopardy standard).

<sup>168</sup> NAT'L RESEARCH COUNCIL, *supra* note 65, at 76.

<sup>169</sup> See *Cattle Growers*, 248 F.3d at 1277.

<sup>170</sup> *Id.* at 1284. This finding was necessary to a holding that the plaintiffs had Article III standing to bring suit.

<sup>171</sup> *Id.* (citing *Catron County Bd. of Comm'rs v. United States Fish & Wildlife Serv.*, 75 F.3d 1429, 1436 (10th Cir. 1996), and observing that the holding "cast doubt" on FWS's position that no impacts flow from critical habitat designation). The National Environmental Policy Act ("NEPA") requires federal agencies to prepare environmental impact statements for actions "significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C) (2000).

<sup>172</sup> This was the approach taken just six months earlier in *Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1179–84 (D.N.M. 2000), *aff'd on other grounds*, 294 F.3d 1220 (10th Cir. 2002), a case that challenged the baseline approach applied to FWS's economic analysis of the critical habitat designation for the Rio Grande silvery minnow.

<sup>173</sup> *Cattle Growers*, 248 F.3d at 1284.

which links critical habitat to the broad concepts of conservation and recovery. The *Cattle Growers* court recognized this problem. Indeed, the court identified this as “the root of the problem” and acknowledged that the Fifth Circuit had already struck down FWS’s definition of “adverse modification” as inconsistent with the statute.<sup>174</sup> But again it stopped short of the obvious implications of this analysis, lamenting simply that “these regulatory definitions are not before us today.”<sup>175</sup> Thus, instead of tackling the acknowledged “root of the problem,” the court brushed that issue aside and indicted the wrong culprit—the baseline approach.

Illogical though it is, the *Cattle Growers* holding need not have terribly broad ramifications in light of the fact that it rested narrowly on FWS’s misguided definitions of “jeopardy” and “adverse modification,” and therefore arguably applies only to economic analyses conducted under FWS’s present regulatory regime. The court’s language indicates pretty clearly that it was *because* of those regulatory definitions that it felt “compelled” to jettison the baseline approach. It started by observing that “the regulation’s definition of the jeopardy standard as fully encompassing the adverse modification standard renders any purported economic analysis done utilizing the baseline approach virtually meaningless.”<sup>176</sup> Yet, the court was “compelled by the canons of statutory interpretation to give some effect to the congressional directive that economic impacts be considered at the time of critical habitat designation.”<sup>177</sup> Given that the validity of the definitions themselves was not before the court,<sup>178</sup> it seems to have viewed striking down the baseline approach as its only option for forcing FWS to consider some real economic impacts and thereby giving some effect to Congress’s directive. Indeed, in reaching its holding, the court reiterated the fact that it was FWS’s regulatory definitions at 50 CFR § 402.02 that compelled the result:

Because economic analysis done using the FWS’s baseline model is rendered essentially without meaning by 50 CFR § 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat des-

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<sup>174</sup> *Id.* at 1283 (citing *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d 434 (5th Cir. 2001)). Ironically, the reasoning the court applied to strike down the baseline approach—that Congress must have meant each provision of the ESA to have some effect—applies with even more force to the definitions of jeopardy and adverse modification, which essentially have the effect of writing the entire critical habitat concept out of the statute. See *supra* notes 109–114 and accompanying text.

<sup>175</sup> *Cattle Growers*, 248 F.3d at 1283.

<sup>176</sup> *Id.* at 1285.

<sup>177</sup> *Id.*

<sup>178</sup> *Id.* at 1283.

ignation, regardless of whether those impacts are attributable co-extensively to other causes.<sup>179</sup>

This language strongly suggests that if FWS were to revise the definitions so as to give some independent meaning to “adverse modification,” as indeed the Fifth Circuit has ordered the agency to do,<sup>180</sup> the *Cattle Growers* holding would no longer apply. FWS could, to use an inapt expression, kill two birds with one stone.

So far, however, the agency shows no signs of adopting such a sensible approach. Rather than reading *Cattle Growers* narrowly, FWS is giving it the broadest possible reach, applying its holding to critical habitat designations throughout the country, even though it is only legally binding within the Tenth Circuit. As a result, it is having a dramatic effect on implementation of the ESA. In industry lawsuits challenging critical habitat designations across the country, courts have been remanding designations back to FWS with orders to redo the economic analyses in light of the *Cattle Growers* opinion. In many instances, the remand is accompanied by an order vacating the critical habitat designation pending the new economic analysis.<sup>181</sup> Thus, many species have been stripped of critical habitat protection while FWS considers anew how to implement Congress’s directive to consider economic impacts in the process of designating critical habitat. In the meantime, FWS has been turning out new economic analyses at an unprecedented rate, issuing about three dozen since the *Cattle Growers* decision. In these new economic analyses, FWS is struggling to comply with the Tenth Circuit’s holding while still applying Section 4(b)(2) in a logically coherent way.

### B. *The New Post–Cattle Growers Economic Analyses*

FWS’s response to the *Cattle Growers* decision betrays some ambivalence toward the ramifications of the Tenth Circuit’s holding. To the

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<sup>179</sup> *Id.* at 1285 (emphasis added).

<sup>180</sup> See *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d 434 (5th Cir. 2001); see also *supra* notes 126–128 and accompanying text.

<sup>181</sup> See, e.g., *Building Industry Legal Defense Found. v. Norton*, 231 F. Supp. 2d 100, 101 (D.D.C. 2002) (granting FWS’s motion to remand and vacate critical habitat designations for Riverside fairy shrimp and arroyo southwestern toad); *Nat’l Assoc. of Homebuilders v. Evans*, 2002 WL 1205743 (D.D.C. Apr. 30, 2002) (approving consent decree vacating and remanding to NMFS critical habitat designations for species of salmon and steelhead trout); *Nat’l Assoc. of Homebuilders v. Norton*, 00-903-PHX-SRB (D.Ariz. Sept. 21, 2001) (granting FWS’s motions to remand and vacate critical habitat designation for the Arizona population of the cactus ferruginous pygmy-owl). A few courts have allowed existing critical habitat designations to remain in place pending remand for completion of new economic analyses. See, e.g., *Natural Resources Defense Council v. U.S. Dep’t of Interior*, 275 F. Supp. 2d 1136 (C.D.Cal. 2002) (granting FWS’s motion to remand critical habitat designations for coastal California gnatcatcher and San Diego fairy shrimp but denying motion to vacate designations).

extent the decision has provided a reason to vacate critical habitat designations, the agency has seemed eager to embrace the holding, entering into agreements with industry groups in cases throughout the country to vacate and remand existing critical habitat designations in order to prepare new economic analyses, even outside the Tenth Circuit where *Cattle Growers* is not binding.<sup>182</sup> This reaction is consistent with FWS's longstanding distaste for critical habitat, which it views as costing the agency dearly in terms of money and political controversy while delivering relatively little in the way of protection for imperiled species. Nonetheless, when it comes to evaluating particular critical habitat designations, the agency continues to find in the vast majority of cases that the costs of critical habitat designation are insignificant and therefore do not warrant any exclusions on economic grounds.<sup>183</sup>

My examination of the economic analyses produced by FWS since *Cattle Growers* reveals several points of interest. First, in setting the baseline for measuring economic impacts, the agency has—rightly I think—resisted the full implications of the Tenth Circuit's holding. Rather than abandoning its original baseline approach, FWS has simply added a second baseline. This second baseline captures the larger set of impacts that the *Cattle Growers* court directed the agency to measure—those caused by both critical habitat and listing. Thus, each economic analysis produces two separate cost estimates, one derived from the original baseline and the other derived from the *Cattle Growers* baseline. While including the second cost estimate “for informational purposes,” FWS continues to base its ultimate conclusion on impacts derived from its original baseline, which, as I argue above, represents the only logically coherent method for accomplishing Congress's mandate. Short of revising the definition of adverse modification, as I urge above, this is probably the best way to comply with the court's ruling while also preserving the logical coherence and integrity of the analysis. Nonetheless, it illustrates vividly the extent to which the Tenth Circuit's ruling has rendered the economic analysis of critical habitat designations needlessly complicated, confusing, and costly.

Second, my examination of the post-*Cattle Growers* economic analyses reveals an increasing trend toward quantification of both costs and benefits. In Part V, I argue that this trend is both contrary to congressional intent and simply a bad idea from a public policy perspective. Indeed, a close look at the agency's efforts in recent economic analyses to quantify the values at stake in critical habitat designation begins to illustrate the particular difficulties with applying formal economic cost-benefit analysis in this context.

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<sup>182</sup> See *supra* note 181.

<sup>183</sup> See *infra* notes 195–197 and accompanying text.

*1. Placating the Tenth Circuit: FWS's Introduction of the Second Baseline*

Immediately following the *Cattle Growers* decision, FWS began a practice of inserting a “preface” at the beginning of each economic analysis explaining the decision and declaring the agency’s intent to comply with it, even in areas outside the Tenth Circuit where the decision is not technically binding. The first of these prefaces stated that the analysis would comply with the Tenth Circuit’s ruling by providing a more detailed analysis of impacts likely to occur in the critical habitat area anyway, regardless of designation (because of other restrictions, like the jeopardy standard).<sup>184</sup> Then, only after that brief discussion would the analysis go on to consider FWS’s original baseline, i.e., those impact attributable solely to critical habitat designation. This position gradually evolved over the following ten months until March 2002, when FWS adopted the finalized version of the preface that now appears at the beginning of nearly every economic analysis.<sup>185</sup> This preface characterizes FWS’s new approach as the addition of a “second baseline.”

The preface that currently appears begins with a spirited defense of the agency’s original “baseline approach,” citing the OMB Guidelines<sup>186</sup> as authority:

The standard best practice in economic analysis is applying an approach that measures costs, benefits, and other impacts arising

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<sup>184</sup> U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF PROPOSED CRITICAL HABITAT DESIGNATION FOR THE QUINO CHECKERSPOT BUTTERFLY at Preface (*prepared by* Industrial Economics, Inc., June 2001) [hereinafter QUINO CHECKERSPOT BUTTERFLY EC. AN.] (“[T]his analysis attempts to comply with the court’s instructions by revising the approach to defining baseline conditions within the areas of proposed critical habitat. Specifically, this analysis presents a detailed discussion of existing Federal, State, and local requirements and both current and planned activities within the proposed critical habitat that are reasonably expected to occur regardless of whether the area is designated as critical habitat.”); U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SCOTTS VALLEY SPINEFLOWER AND THE SCOTTS VALLEY POLYGONUM 3 (July 2001) (“[T]his analysis attempts to comply with the court’s instructions by revising the level of detail in the description of baseline conditions within the areas of proposed critical habitat. Specifically, this analysis quantifies, to the extent possible, the effects of section 7 in its entirety on current and planned activities that are reasonably expected to occur in the near future within proposed critical habitat.”).

<sup>185</sup> A couple of recent economic analyses have not included the standard preface. See U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR ELEVEN MOBILE RIVER BASIN MUSSELS (June 2003); U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC IMPACT ANALYSIS OF PROPOSED CRITICAL HABITAT FOR THREATENED AND ENDANGERED PLANTS ON MOLOKAI (*prepared by* Anden Consulting, Aug. 2002); U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF PROPOSED CRITICAL HABITAT DESIGNATION FOR OAHU PLANTS, ISLAND OF OAHU, HAWAII (*prepared by* Research Solutions, LLC, Dec. 2002) [hereinafter OAHU PLANTS EC. AN.]. These analyses also have not employed the double baseline approach, instead using only the Section 7 baseline mandated by *Cattle Growers*.

<sup>186</sup> See *supra* note 31.

from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analysis, developed in accordance with recommendations set forth in Executive Order 12866 . . . for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach:

“The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.”

When viewed in this way the economic impacts of critical habitat designation involve evaluating the “without critical habitat” baseline versus the “with critical habitat” scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios.<sup>187</sup>

This, of course, describes precisely FWS’s original “baseline approach” that was struck down by the Tenth Circuit in *Cattle Growers*.

The preface then goes on to explain the *Cattle Growers* decision and declares that the current analysis “addresses the 10th Circuit’s concern.” Rather than abandon the critical habitat baseline altogether, however, FWS “addresses the Tenth Circuit’s concern” by simply adding a second baseline to the analysis. According to FWS, this second baseline serves to “acknowledg[e] the uncertainty of assigning certain post-designation economic impacts (particularly Section 7 consultations) as having resulted from either the listing or the designation.”<sup>188</sup> Thus, the preface explains:

[T]his analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be “attributable co-extensively” to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications based on the benefits and economic costs of project modifications that would be required due to consultation under the jeopardy standard . . . .

The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. It will attempt to provide the Service’s best analysis of which of the effects of future con-

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<sup>187</sup> See, e.g., U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE RIO GRANDE SILVERY MINNOW, FINAL DRAFT (May 2002) [hereinafter SILVERY MINNOW EC. AN.].

<sup>188</sup> *Id.*

sultations actually result from the regulatory action under review—i.e. the critical habitat designation. These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone as well as costs resulting from uncertainty and perceptual impacts on markets.<sup>189</sup>

Accordingly, each new economic analysis now generates two separate cost figures.<sup>190</sup> The first, “Section 7 impacts,” reflects the projected costs associated with both listing and critical habitat designation. The second, “critical habitat impacts,” reflects only the projected costs associated with the critical habitat designation itself.<sup>191</sup> The preface suggests that the two cost estimates generated by these two baselines are supposed to define a range within which the actual cost of critical habitat designation is estimated to occur, with the Section 7 baseline defining the upper bound and the critical habitat baseline defining the lower bound.<sup>192</sup> This is misleading, however, since in most instances FWS’s final determination turns only on the critical habitat baseline and ignores the upper cost estimate entirely.<sup>193</sup>

Following the preface, one of these new economic analyses typically begins with some background information on the species and its habitat, the geographic area covered by the proposed designation, and general socioeconomic data on the region. It then proceeds to a lengthy discussion of costs, which for species that are controversial and/or cover large ranges can run 50 to 100 pages.<sup>194</sup> This discussion ultimately generates

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<sup>189</sup> *Id.*

<sup>190</sup> A few recent economic analyses have departed from this practice, using only the Section 7 baseline mandated by *Cattle Growers*. See 46 Hawaiian Plant Species Critical Habitat Designation, 68 Fed. Reg. 39,624, 39,681 (July 2, 2003) (“Because of the uncertainty about the benefits and economic costs resulting solely from critical habitat designations, the Service believes that it is reasonable to estimate the economic impacts of a designation utilizing this single baseline.”); 101 Oahu Plant Species Critical Habitat Designation, 68 Fed. Reg. 35,950, 36,069 (June 17, 2003) (same); U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT FOR ELEVEN MOBILE RIVER BASIN MUSSELS 1–11 (June 2003) (“this analysis does not differentiate between consultations that result from the listing of the species (i.e., the jeopardy standard) and consultations that result from the presence of critical habitat (i.e., the adverse modification standard.”). These analyses do not include the standard preface discussing the implications of *Cattle Growers*.

<sup>191</sup> This concept of two baselines begins to fall apart when it comes to discussing benefits. See *infra* notes 229–239 and accompanying text.

<sup>192</sup> See GULF STURGEON EC. AN., *supra* note 128, at 51 (“Establishing an explicit distinction between listing and designation impacts is difficult due to a variety of factors that reasonably could be linked to either category.”).

<sup>193</sup> *But see supra* note 190.

<sup>194</sup> See, e.g., KANGAROO RAT EC. AN., *supra* note 158; PYGMY-OWL EC. AN., *supra* note 128; U.S. FISH & WILDLIFE SERV., ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR VERNAL POOL SPECIES 123–24 (*prepared by* Industrial Economics, Inc., Oct. 28, 2002) [hereinafter VERNAL POOL SPECIES EC. AN.].

two dollar figures, each representing a cost estimate derived from one of the two baselines discussed above. This is followed by a brief discussion of the benefits of critical habitat designation. For the first year following *Cattle Growers*, these discussions followed a rough boilerplate formula that covered about two pages and spoke in very vague terms. The agency made no attempt to generate quantitative estimates or to distinguish between the two baselines in the context of evaluating benefits. This approach appears to be changing, however. As discussed below in Part IV.B.2.b, several recent economic analyses for major controversial critical habitat designations have contained expanded discussions of benefits that even suggest dollar figures in connection with some aspects of benefits based on willingness-to-pay surveys. None have yet attempted to generate an overall quantitative estimate of benefits, however.

Following this discussion of benefits, the economic analyses end abruptly. FWS saves the last step—the actual balancing of costs against benefits—for the final rule designating critical habitat, which is usually published in the Federal Register about five to ten months after the economic analysis is made public. The final rule typically contains a short section (one to two paragraphs) entitled “Economic Analysis,” which presents the conclusion of the economic analysis—that is, the final determination as to whether the costs of inclusion outweigh the benefits for any particular area of critical habitat.<sup>195</sup> So far, in the vast majority of the thirty-five or so critical habitat designations completed since the *Cattle Growers* opinion was issued, FWS has answered this question in the negative.<sup>196</sup> In most instances, the basis for this conclusion has been

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<sup>195</sup> An affirmative finding (that the benefits of exclusion outweigh the benefits of inclusion) authorizes the Secretary to exercise her discretion to exclude that area from the critical habitat designation, as long as such exclusion will not result in extinction of the species. 16 U.S.C. § 1533(b)(2) (2000).

<sup>196</sup> A few recent designations have excluded areas of critical habitat on economic grounds. See Vernal Pool Crustaceans and Plants Critical Habitat Designation, 68 Fed. Reg. 46,684, 46,745–47 (Aug. 6, 2003); 46 Hawaiian Plant Species Critical Habitat Designation, 68 Fed. Reg. 39,624, 39,681–86 (July 2, 2003); Gulf Sturgeon Critical Habitat Designation, 68 Fed. Reg. 13,370, 13,400–03 (Mar. 19, 2003); *Chlorogalum Purpureum* Critical Habitat Designation, 67 Fed. Reg. 65,414, 65,431–33 (Oct. 24, 2002). In several other instances, FWS has excluded areas from critical habitat under Section 4(b)(2) on grounds the agency terms “non-economic.” Usually the lands excluded are subject to some other agreement or plan for conserving the species, such as a habitat conservation plan (“HCP”) or an Integrated Natural Resources Management Plan (“INRMP”) on military lands. FWS has concluded in a number of such instances that the benefits of exclusion outweigh the benefits of inclusion because designation of critical habitat provides little additional benefit above that provided by the HCP or INRMP and may in fact interfere with cooperative efforts with landowners. See, e.g., 101 Oahu Plant Species Critical Habitat Designation, 68 Fed. Reg. 35,950, 36,070–71 (June 17, 2003) (excluding military lands subject to INRMP); Blackburn’s Sphinx Moth Critical Habitat Designation, 68 Fed. Reg. 34,710, 34,745 (June 10, 2003) (excluding two privately owned ranches from designation “because the benefits provided by these two landowners’ voluntary conservation activities within and adjacent to these units outweigh the benefits provided by a designation of critical habitat”). But see *Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003) (exclusion of forest service and tribal lands from critical habitat designation

FWS's finding that the "critical habitat impacts"—or the cost figure derived from the original baseline—are "not significant."<sup>197</sup> This discussion usually makes no mention of the significance of the cost figure derived from the other baseline—the "Section 7 impacts."<sup>198</sup> Thus, in the final analysis, FWS's economic analysis continues to turn on the same critical habitat baseline that the Tenth Circuit held invalid in *Cattle Growers*.

At first glance, FWS seems almost to be thumbing its nose at the Tenth Circuit, including the broader Section 7 baseline mandated by *Cattle Growers* in its analysis, but then studiously ignoring its results when it comes to applying the analysis. On the other hand, in light of the task set out for FWS in the statute, it is not clear that the agency could have coherently adopted a different approach to applying the *Cattle Growers* holding.<sup>199</sup>

Interpreting the first sentence of Section 4(b)(2)—directing FWS to "tak[e] into consideration the economic impact"<sup>200</sup> of critical habitat designation—the Tenth Circuit ordered FWS to "conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively with other causes" (like listing).<sup>201</sup> Yet the second sentence of Section 4(b)(2) directs FWS to use that economic analysis to determine whether, for any particular area of critical habitat, the costs of inclusion outweigh the benefits of inclusion.<sup>202</sup> To the extent the *Cattle Growers* baseline includes impacts beyond those attributable to the critical habitat designation alone, it

for Mexican spotted owl on grounds that adequate protection already existed held unlawful).

<sup>197</sup> The unstated assumption seems to be that this finding of insignificant costs obviates the need for any formal "balancing," since insignificant costs would never outweigh the benefits of critical habitat designation and would thus never justify excluding an area from critical habitat on economic grounds.

<sup>198</sup> See, e.g., Northern Plains Piping Plover Critical Habitat Designation, 67 Fed. Reg. 57,638, 57,675 (Sept. 11, 2002) (finding critical habitat impacts of \$58,000 "minimal"); U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE NORTHERN GREAT PLAINS BREEDING POPULATION OF THE PIPING PLOVER 3–27 (Nov. 2001) (estimating total Section 7 costs at \$843,600 over ten years and estimating that "[o]f this total . . . a maximum of approximately \$58,000 per year . . . will be due to designation of critical habitat"). But see Rio Grande Silvery Minnow Critical Habitat Designation, 68 Fed. Reg. 8088, 8128 (Feb. 19, 2003) (basing conclusion on total Section 7 impacts, but nonetheless finding "insignificant" annual impacts of \$1.9 to \$16.2 million since they are less than the \$100 million threshold of Executive Order 12,866).

<sup>199</sup> This assumes, of course, that the agency continues to use its old definition of "adverse modification." If it were to revise that definition (in accordance with the Fifth Circuit's decision in *Sierra Club v. U.S. Fish & Wildlife Serv.*), it could take the position that *Cattle Growers* no longer applies at all, as I have argued above. See *supra* notes 176 to 180 and accompanying text.

<sup>200</sup> 16 U.S.C. § 1533(b)(2) (2000).

<sup>201</sup> *Cattle Growers*, 248 F.3d at 1285.

<sup>202</sup> The actual language is "[t]he Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat." 16 U.S.C. § 1533(b)(2) (2000). For clarity, I refer to the "benefits of exclusion" as the "costs of inclusion."

does not provide a measure of the costs of inclusion. Costs that would be incurred anyway, even in the absence of critical habitat designation, cannot be recouped or saved by excluding an area from critical habitat. Therefore, FWS cannot rationally use the *Cattle Growers* baseline to make the ultimate exclusion determination called for in the statute. Accordingly, the agency has done perhaps the best it can—short of avoiding *Cattle Growers* entirely by revising its regulations, as I suggest above—by including the Section 7 baseline mandated by *Cattle Growers* in its economic analyses for informational purposes, but continuing to rely on the pre-*Cattle Growers* critical habitat baseline in making the exclusion determination required under the statute.

Other than providing the agency with a credible argument that it is complying with the Tenth Circuit's ruling, however, the addition of the second baseline serves no useful purpose. Indeed, it only adds needless complication and cost to the analysis without providing any additional information useful to the exclusion determination FWS is charged with making under Section 4(b)(2). If anything, it is likely to hinder the decision-making process by confusing and misleading the public. The second baseline produces substantially higher cost estimates since it includes costs attributable to listing as well as critical habitat designation. Members of the public not fully versed in the intricacies of the issue, however, are likely to erroneously assume that the full amount of this larger cost figure can be saved by excluding areas from critical habitat. In this way, the second baseline is likely to mislead the public into believing that critical habitat is significantly more costly than it actually is. This is likely to exacerbate public misconceptions that already tend to exaggerate the true costs of critical habitat.

To minimize such confusion, FWS should, at a minimum, eliminate the second baseline from the economic analyses of designations, at least outside the Tenth Circuit, where *Cattle Growers* is not binding. Preferably, as I argue above,<sup>203</sup> FWS should revise its definitions so as to give independent meaning to the concept of "adverse modification." This would allow it to then take the position that, under this new regulatory regime in which critical habitat does make a difference, economic analyses done using the baseline approach are no longer "meaningless"<sup>204</sup> and the *Cattle Growers* holding therefore no longer applies.

## 2. *The Trend Toward Increasing Quantification*

Perhaps the most significant change in FWS's economic analyses in the wake of *Cattle Growers* has been the embrace of quantification. All of the new economic analyses have generated cost estimates in the form

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<sup>203</sup> See *supra* notes 176–180 and accompanying text.

<sup>204</sup> *Cattle Growers*, 248 F.3d at 1285.

of dollar figures, and some have even begun to introduce quantification into the analysis of benefits as well. Unless the agency and/or the courts take steps to prevent it, this trend toward further quantification of both costs and benefits—that is, toward an analysis that looks more and more like formal economic cost-benefit analysis—is likely to continue. As I argue in Part V, this is consistent neither with congressional intent nor with good public policy.

*a. The Costs Side*

With a few exceptions, the economic analyses produced prior to the Tenth Circuit's ruling in *Cattle Growers* made no attempt to quantify the costs associated with critical habitat designation.<sup>205</sup> Some took the approach of the economic analysis for the southwestern willow flycatcher that was struck down in *Cattle Growers*, simply concluding that there could be no appreciable economic impacts since critical habitat by definition imposes no more regulatory burdens than are already imposed by listing.<sup>206</sup> Others acknowledged that certain costs would result from the designation, such as the costs of re-initiated consultations and lowered real estate values caused by a perception of increased regulatory burdens, but simply concluded that these impacts would be short-term and insignificant, making no attempt to quantify them.<sup>207</sup>

In contrast, all of the economic analyses produced since the *Cattle Growers* decision have attempted to quantify the costs of critical habitat designation in dollar terms. This new approach requires the agency to make innumerable guesses and simplifying assumptions about, *inter alia*, the nature and extent of future development in the area, the extent to which future development projects are likely to have a federal nexus and therefore trigger Section 7 consultations, the procedural and substantive

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<sup>205</sup> A few economic analyses done during the year just prior to the *Cattle Growers* decision presented the costs in monetary terms. See Great Lakes Piping Plover Critical Habitat Designation, 66 Fed. Reg. 22,938, 22,957 (May 7, 2001); Quino Checkerspot Butterfly Critical Habitat Designation, 67 Fed. Reg. 18,356, 18,378 (Apr. 15, 2002); California Red-legged Frog Critical Habitat Designation, 66 Fed. Reg. 14,626, 14,656 (Mar. 13, 2001). Perhaps FWS was beginning to anticipate that the arguments made in *Cattle Growers* would eventually be successful.

<sup>206</sup> See, e.g., Mexican Spotted Owl Critical Habitat Designation, 66 Fed. Reg. 8530, 8547 (Feb. 1, 2001) (“We concluded . . . that no significant economic impacts are expected from critical habitat designation above and beyond that already imposed by listing the Mexican spotted owl.”); Pygmy-Owl Critical Habitat Designation, 64 Fed. Reg. 37,419, 37,434 (July 12, 1999) (“We believe that any project that would adversely modify or destroy critical habitat would also jeopardize the continued existence of the species and that reasonable and prudent alternatives to avoid jeopardizing the species would also avoid adverse modification of critical habitat. Thus, no regulatory burden or additional costs would accrue because of critical habitat above and beyond that resulting from listing.”).

<sup>207</sup> See, e.g., Arroyo Toad Critical Habitat Designation, 66 Fed. Reg. 9414, 9447 (Feb. 7, 2001); Spectacled Eider Critical Habitat Designation, 66 Fed. Reg. 9146, 9174 (Feb. 6, 2001).

costs likely to be imposed by such consultations, and whether those costs would have been imposed anyway as a result of the listing or can be attributed solely to the critical habitat designation.

While the economic analyses vary depending on the size of the area proposed for designation, the consultant who authored the analysis,<sup>208</sup> and the FWS regional office involved, the derivation of a numerical cost estimate generally involves the following steps: First, the analysis identifies categories of potential development activity likely to occur in the area and estimates the number of development projects of each type likely to occur over the next ten years.<sup>209</sup> The total area proposed to be designated as critical habitat is typically broken up into units, and this analysis is performed separately for each unit. For small designations, each unit may be no more than five to twenty-five acres, and in such instances the analysis is very specific, identifying each landowner and describing particular development projects already proposed or likely to be proposed in the future. These small analyses will make a case-by-case assessment of the likelihood that particular development projects will trigger consultation or require project modifications and the costs likely to be imposed.<sup>210</sup>

Larger designations, on the other hand, require more generalized estimates. For example, the economic analysis evaluating the proposed designation of 1,208,000 acres in the fast-growing Tucson area as critical habitat for the endangered cactus ferruginous pygmy-owl used a geographic information system ("GIS") model developed by local government planners to derive an estimated number of future housing units projected to be built in the critical habitat area over the next ten years.<sup>211</sup> The economic analysis for the proposed designation of 55,410 acres of land in California as critical habitat for the San Bernardino kangaroo rat used a computer model that provides spatial predictions of the extent of urban growth in various regions of California in conjunction with information on zoning and other land use regulations to derive an estimate of the number of acres in each unit likely to be developed for residential, commercial, and industrial purposes over the next ten years.<sup>212</sup> Then, based on the average size of past development projects in the area, the analysis adopted an assumption as to how many development projects

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<sup>208</sup> Most recent analyses have contracted out to a firm called Industrial Economics in Cambridge, Massachusetts, though that firm has in some instances sub-contracted to other economic consulting firms.

<sup>209</sup> Almost all of the economic analyses limit the time horizon to ten years. *See infra* note 315.

<sup>210</sup> *See, e.g.*, U.S. FISH & WILDLIFE SERV., FINAL DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SANTA CRUZ TARPLANT 8-20 (prepared by Industrial Economics, Inc., Apr. 2002) [hereinafter SANTA CRUZ TARPLANT EC. AN.].

<sup>211</sup> For other categories of development activities, such as livestock grazing, ranching, and mining, the analysis used past patterns of activity to generate an estimate of likely future activities. *See* PYGMY-OWL EC. AN., *supra* note 128, at 4-4, 5-22.

<sup>212</sup> KANGAROO RAT EC. AN., *supra* note 158, at 22 and 30.

would occur on a given quantity of land. Based on the fact that “large residential projects generally range in size from 25 to 432 acres,” for example, it adopted the assumption that one large residential development would occur on every 100 acres of developable land.<sup>213</sup>

The second step is to translate, for each category of development activity, the estimate of the total number of development projects likely to occur in the critical habitat area into an estimate of the total number of Section 7 consultations likely to be triggered by those projects. Since Section 7 only applies to federal agencies, this requires estimating how many of the development projects are likely to have a federal nexus.<sup>214</sup> The kangaroo rat analysis, acknowledging that this is “difficult to determine,” employed an assumption that fifty percent of large residential, commercial, and industrial projects in the critical habitat area would require a federal permit.<sup>215</sup> It provided no explanation of where the fifty percent figure came from, except to say it was “based on conversations with the [U.S. Army Corps of Engineers], and the occurrence of rivers, creeks, streams and other drainage features in the proposed critical habitat area.”<sup>216</sup> The pygmy-owl analysis, on the other hand, did look at historical patterns of consultation on housing developments and used this data to extrapolate a total projected number of consultations on residential housing developments.<sup>217</sup>

The third step is to estimate, for each category of development activity, the percentage of these consultations likely to result in project modifications or delays. The kangaroo rat analysis observed that only one out of nine formal consultations performed since the listing of the kangaroo rat had resulted in major modifications or delays and accordingly adopted an assumption that one out of every ten potential future formal consultations would require a “significant project modification or delay.”<sup>218</sup> The pygmy-owl analysis, on the other hand, noting that “[f]ormal consultations [regarding the pygmy-owl] on housing developments have typically generated significant project modifications,” assumed that all formal consultations would result in project modification costs.<sup>219</sup>

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<sup>213</sup> *Id.* at 91.

<sup>214</sup> *See supra* note 46 and accompanying text. A federal nexus triggering the requirements of Section 7 usually occurs when a project is funded by the federal government or where some aspect of the project requires a federal permit.

<sup>215</sup> KANGAROO RAT EC. AN., *supra* note 158, at 92. The analysis further assumed that seventy-five percent of these consultations would be completed informally and twenty-five percent would require formal consultation. *Id.* at 101.

<sup>216</sup> *Id.* The most likely source of a federal nexus for a private development project is Section 404 of the Clean Water Act, which requires private parties to obtain permits from the Army Corps of Engineers before conducting dredging or filling activities in the waters of the United States, including wetlands, rivers, creeks, and streams. *See* 33 U.S.C. § 1344 (2000); 33 CFR § 328.3(a)(3) (2002).

<sup>217</sup> PYGMY-OWL EC. AN., *supra* note 128, at 3-5 to 3-6.

<sup>218</sup> KANGAROO RAT EC. AN., *supra* note 158, at 99.

<sup>219</sup> PYGMY-OWL EC. AN., *supra* note 128, at 3-7, 5-30 to 5-31.

The fourth step is to estimate, for each category of costs attributable to critical habitat designation, a “per effort” or per consultation cost. The analysis usually does this by examining past consultations and calculating an average “per effort” cost for a formal consultation, summing the costs borne by the action agency, FWS, and the private developer.<sup>220</sup> Similarly, by examining mitigation requirements that have been imposed on projects under past consultations, the analysis derives a “per effort” estimate of average project modification costs.<sup>221</sup> The second estimate is obviously particularly problematic, since project modifications are very case specific and vary widely from project to project.

The fifth step is to multiply these “per effort” costs by the total estimated number of “efforts” for each category and sum them to obtain a total cost estimate. Thus, the “per effort” cost per formal consultation is multiplied by the total number of formal consultations expected to occur over the next ten years to obtain a total formal consultation cost. Similarly, the “per effort” cost of major project modifications is multiplied by the total number of consultations expected to result in major project modifications over the next ten years to obtain a total project modifications cost. These totals are summed for each category of development activity, each category of cost, and each unit of critical habitat to obtain a global total representing the overall costs of the critical habitat designation as a whole.<sup>222</sup> This cost estimate, however, represents the *Cattle Growers* (or “Section 7”) baseline, not the original FWS baseline, since it does not differentiate between consultations that would have occurred anyway even in the absence of critical habitat designation and consultations attributable solely to the designation.

Accordingly, the sixth and final step is to separate out “critical habitat costs” (based on the original FWS baseline) from “total Section 7 costs” (based on the *Cattle Growers* baseline). Analyses accomplish this task in different ways. The kangaroo rat analysis’s approach was to assess “how the designation provides new information to federal agencies

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<sup>220</sup> The analysis usually also estimates a “per effort” cost for other categories of procedural costs as well, including informal consultations and technical assistance (i.e., resources expended by FWS in responding to general inquiries re: critical habitat). *See, e.g., id.* at 5-4 to 5-6.

<sup>221</sup> Project modifications may include habitat restoration and enhancement, purchase of additional habitat areas, monitoring and survey requirements, education programs, and project delays.

<sup>222</sup> Technically, FWS should perform a separate cost-benefit analysis for each unit of critical habitat in order to determine the impacts “of specifying any particular area as critical habitat.” 16 U.S.C. § 1533(b)(2) (2000). But because it almost always finds even the overall costs to be insignificant, it rarely reaches the step of balancing costs against benefits anyway. *See supra* notes 195–197; *but see* designations cited *supra* note 196.

Where such balancing is performed, the question of what constitutes an appropriate unit is controversial. The statute does not define “particular area,” yet clearly the decision whether to define units by, for example, property or political boundaries versus ecological boundaries like watersheds has significant ramifications.

that initiate the consultation process.”<sup>223</sup> The analysis estimated which areas of the proposed designation were previously recognized as kangaroo rat habitat and which areas were newly identified as such by the designation. It then identified the percentage of each unit that was newly identified and multiplied that by the total estimated Section 7 costs for that unit to obtain a new figure representing critical habitat costs. Summing these figures for each unit then yielded a second smaller overall cost figure, “critical habitat costs,” representing the costs solely attributable to critical habitat designation.<sup>224</sup>

The pygmy-owl analysis took a different approach. In that instance, critical habitat had been previously designated for a two-year period prior to being vacated by court order.<sup>225</sup> The analysis accordingly attempted to estimate the percentage of overall impacts attributable solely to critical habitat by using historical data that compared the consultation rate that occurred when critical habitat was in place to that which occurred when it was not. It compared the number of consultations on residential developments initiated during the two-year period that the designation was in effect (fifty-six percent) to the number of consultations initiated before and after that two-year period (forty-four percent). Then, through a considerable leap of logic (apparently assuming that none of the fifty-six percent that occurred during the two-year period that the critical habitat designation was in place would have occurred but for the designation), it projected that fifty-six percent of future residential development projects would be solely attributable to critical habitat designation.<sup>226</sup>

These attempts to quantify the costs of critical habitat designation in dollar terms clearly involve innumerable layers of simplifying assumptions, each of which is highly vulnerable to attack. While FWS sometimes makes an effort to acknowledge these inherent uncertainties by expressing cost estimates as a range, it is likely that any economist paid to do the job could demonstrate that a different set of reasonable assumptions could lead to a final estimate lower than FWS’s low figure or higher than its high figure.<sup>227</sup> Thus, even accepting FWS’s overall framework of analysis, there is substantial room for disagreement on any given case. Moreover, in addition to trying to project the direct impacts of critical habitat designation in the form of increased consultation costs and proj-

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<sup>223</sup> KANGAROO RAT EC. AN., *supra* note 158, at 105.

<sup>224</sup> *See id.* at 105–06.

<sup>225</sup> *See Nat’l Assoc. of Homebuilders v. Norton*, Civ.-00-0903-PHX-SRB (Sept. 21, 2001).

<sup>226</sup> PYGMY-OWL EC. AN., *supra* note 128, at 5-32.

<sup>227</sup> *Cf.* Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEORGETOWN L.J. 2255, 2290–92 (2002) (demonstrating how “creative lawyers . . . might be able to mount plausible challenges to [agency decisions based on cost-benefit analysis] regardless (almost) of the content of those decisions”); SAGOFF, *supra* note 19, at 93 (arguing that “a clever analyst could justify any law or rule” on the basis of cost-benefit analysis).

ect modification costs, a comprehensive analysis of costs should also take into account the indirect economic impacts on, for example, labor markets, property values, and municipal tax revenues.<sup>228</sup> As discussed below in Part V.C.2.a, such considerations introduce yet more complexity and controversy into the analysis.

*b. The Benefits Side*

In contrast to these lengthy discussions of costs, the sections discussing the “benefits” of critical habitat designations were, at least until recently, usually only one to two pages long. Much of this text was boilerplate. The discussion typically began by describing generally the benefits of species preservation in terms of recreational use values and existence values. It would then list and briefly describe several specific categories of benefits, which would vary from species to species, but often included “ecosystem health,” “real estate value effects,” “flood control,” and/or “existence value.”<sup>229</sup>

FWS was ultimately hesitant to attribute any of these major benefits specifically to critical habitat designation, however. It would acknowledge the “unlikely” possibility that a single project modification associated with the critical habitat designation might provide the last increment of protection needed to make the difference between survival and extinction, but conclude that “[t]he benefits identified . . . arise primarily from the protection afforded to the [species] under the federal listing.”<sup>230</sup> Benefits that FWS identified as clearly attributable to critical habitat designation were relatively minor, including “some educational benefit” stemming from increased awareness of the extent of the species’s habitat and a reduction in the uncertainties faced by federal agencies in determining whether Section 7 consultation is necessary. Finally, the benefits section consistently concluded with the observation that “[t]he quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult.”<sup>231</sup>

While the benefits discussions followed this standard script for the first year following *Cattle Growers*, recently the agency’s approach toward assessing benefits has begun to change. With the economic analysis for the Gulf sturgeon, issued in July 2002, FWS has begun to move in the

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<sup>228</sup> A few recent economic analyses have made some attempt to account for these kinds of secondary costs, usually only in qualitative terms. See *infra* note 317.

<sup>229</sup> See, e.g., SANTA CRUZ TARPLANT EC. AN., *supra* note 210, at 29; KANGAROO RAT EC. AN., *supra* note 158, at 113–14; QUINO CHECKERSPOT BUTTERFLY EC. AN., *supra* note 184, at 74–76.

<sup>230</sup> See, e.g., U.S. FISH & WILDLIFE SERV., FINAL DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE PURPLE AMOLE AND THE CAMATTA CANYON AMOLE 19 (prepared by Industrial Economics, Inc., Apr. 2002).

<sup>231</sup> See, e.g., SILVERY MINNOW EC. AN., *supra* note 187, at 90; SANTA CRUZ TARPLANT EC. AN., *supra* note 210, at 30; KANGAROO RAT EC. AN., *supra* note 158, at 114.

direction of quantifying the benefits of critical habitat designation as well as the costs.

The Gulf sturgeon analysis itself expressed a marked ambivalence about quantifying benefits. It ultimately concluded that “it is not feasible to fully describe and accurately quantify the benefits of this designation”<sup>232</sup> and stated that future impacts were “expected to be primarily associated with the listing of the species.”<sup>233</sup> “Given these limitations,” it went on to say, “[FWS] believes that the benefits of critical habitat designation are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.”<sup>234</sup>

Despite these protestations, however, FWS replaced the two-page boilerplate of previous analyses with a significantly expanded discussion covering ten pages, which included numerous citations to economics literature, as well as an extensive discussion of willingness-to-pay studies. It described ten such studies involving various fish species, ranging from the squawfish (for which households in New Mexico were willing to pay \$3.42 to \$8.49 per year) to endangered steelhead and salmon species (for which households in Washington State were willing to pay \$72 per year).<sup>235</sup> Although the analysis concluded that these studies were too variable to provide an accurate basis for predicting willingness-to-pay for preservation of the Gulf sturgeon’s critical habitat, the extensive discussion of these studies at least suggests, and indeed seems to endorse, a methodology that could be used to monetize the benefits of critical habitat.

The economic analysis for the cactus ferruginous pygmy-owl, issued in November 2002, took the next step. Like the Gulf sturgeon analysis, the pygmy-owl analysis concluded that it is “not feasible” to monetize the overall benefits of designation.<sup>236</sup> In particular, it concluded that “sufficient information does not exist to allow for quantification of the secondary benefits of habitat protection (e.g., recreational benefits, real estate benefits, overall ecosystem health, etc.).”<sup>237</sup> FWS did not, however, take the position that the benefits associated with preservation of the spe-

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<sup>232</sup> GULF STURGEON EC. AN., *supra* note 128, at 64. The full quote is “it is not feasible to fully describe and accurately quantify the benefits of this designation *in the context of this economic analysis*,” (emphasis added) suggesting that FWS does not necessarily take the position that such quantification is impossible, but rather that such an analysis would be too costly for the agency to perform. *See also* PYGMY-OWL EC. AN., *supra* note 128, at 6-2 (making the same statement); *id.* at 6-19 (“The resources required to develop, pre-test, and administer a [willingness-to-pay] survey that assesses the benefits associated specifically with the proposed pygmy-owl designation is beyond the scope of this study.”).

<sup>233</sup> GULF STURGEON EC. AN., *supra* note 128, at 68. This assumption that critical habitat designation provides little or no benefit above listing arises, of course, from the agency’s arguably erroneous definition of “adverse modification.” *See supra* notes 109–128 and accompanying text.

<sup>234</sup> GULF STURGEON EC. AN., *supra* note 128, at 65.

<sup>235</sup> *Id.* at 69–74.

<sup>236</sup> PYGMY-OWL EC. AN., *supra* note 128, at 6-2.

<sup>237</sup> *Id.* at 6-19.

cies were primarily attributable to listing rather than critical habitat designation, as it had in all previous analyses. In fact, after nearly thirty pages of analysis, FWS actually produced a dollar figure—albeit a rough one—representing the non-use values associated with critical habitat designation for the pygmy-owl. The analysis found a series of willingness-to-pay surveys performed in the 1990s assessing the non-use value of designating critical habitat for the Mexican spotted owl sufficiently similar to warrant a “benefits transfer” to the case of the pygmy-owl.<sup>238</sup> Based on these studies, the analysis concluded that “the national benefits associated with critical habitat [designation for the pygmy-owl] could reasonably be expected to be in the low billions of dollars annually.”<sup>239</sup>

In sum, it seems that the *Cattle Growers* decision has sparked a trend toward increasing quantification of the economic analysis of critical habitat designations. That trend began with the costs side of the equation, but recent indications are that FWS is moving toward more and more quantification of the benefits side as well. Specifically, the agency is showing an increasing interest in using willingness-to-pay surveys to put numbers on the biological benefits associated with species preservation. As of this writing, FWS’s approach to these economic analyses remains very much a work in progress. Though the guidance document the agency has reportedly been working on for several years has yet to appear, its approach to economic analyses continues to evolve.<sup>240</sup> It seems

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<sup>238</sup> “Benefits transfer” is a term of art in economics referring to a method for applying the results of existing valuation studies to a new non-market good that is the subject of study. A defensible benefits transfer requires “(1) the use of studies that apply acceptable techniques to generate welfare values, and (2) similarity between the good being valued in the literature and the good being valued in the policy context to which the transfer is being made.” *Id.* at 6-20.

<sup>239</sup> PYGMY-OWL EC. AN., *supra* note 128, at 6-24. The Mexican spotted owl surveys produced mean willingness-to-pay estimates of \$50 to \$130 annually. Multiplying the low figure by the total number of households in the United States yields a total willingness to pay of \$2 billion annually. *Id.* Another recent economic analysis generated a monetary estimate of regional economic activity generated by conservation management and project modification expenditures associated with critical habitat. The analysis applied an economic forecasting model that estimated that each additional million dollars spent in Hawaii would generate approximately \$1.8 million in direct and indirect sales and support about twenty-two direct and indirect jobs in the state. It concluded that over ten years, critical habitat designation would generate roughly \$90 to \$118 million in sales and support 997 to 1334 jobs in the state. *See* U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC IMPACT ANALYSIS OF PROPOSED CRITICAL HABITAT FOR THREATENED AND ENDANGERED PLANTS ON THE ISLAND OF HAWAII VI-97 to VI-99 (*prepared by* Research Solutions, LLC, Dec. 2002). This analysis also discussed economic activity associated with potential medical/pharmaceutical and eco-tourism benefits but made no attempt to quantify these. *See id.* *See also* VERNAL POOL SPECIES EC. AN., *supra* note 194, at 123-24 (describing without quantifying benefits stemming from the expansion of the industry segment offering conservation bank credits for vernal pool conservation).

<sup>240</sup> *See* “FWS Species Program Having Trouble Keeping Staff, GAO Finds,” 7 ENDANGERED SPECIES & WETLANDS REP. NO. 10 at 12 (July/Aug. 2002) (reporting that FWS is in the process of developing a “framework for the economic analysis of critical habitat designations”).

likely, however, that unless the agency and/or the courts take decisive action to prevent it, this trend toward increasing quantification will continue.

Indeed, it is easy to imagine that *Cattle Growers* was just the first yank on the rope in an ongoing tug-of-war between environmentalists and industry in which each side will progressively force FWS to spend more and more money seeking the holy grail of accuracy in the quantification of costs and benefits. Thus far, FWS's reluctance to express benefits in quantitative terms has posed little problem for the agency since it has consistently avoided the final step of balancing costs against benefits by concluding that the costs themselves were insignificant.<sup>241</sup> But the critical habitat impacts that FWS has deemed insignificant have ranged from several thousand dollars to over a hundred million dollars.<sup>242</sup> Eventually, industry is likely to challenge FWS's claim that even eight-figure costs are not "significant," and thereby force the agency to conduct some kind of analysis that actually balances costs against benefits. Though it may start by performing rough apples-to-oranges comparisons in order to avoid quantifying benefits, a determination to either exclude or not exclude based on such an analysis will inevitably lead the disappointed constituency to sue claiming that benefits should have been quantified to ensure an objective and accurate cost-benefit analysis.<sup>243</sup> Ultimately, unless FWS takes a stand in favor of a "short-cut" approach, as I argue below it should, and unless it is backed up by the courts, this political dynamic will lead ineluctably to a more and more quantitative, complicated, and costly analysis. Yet this kind of formal economic cost-benefit analysis is clearly not what Congress had in mind in enacting the economic analysis provision of the ESA, nor is it a good idea from a public policy perspective.

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<sup>241</sup> In the few instances since *Cattle Growers* in which FWS has actually performed the balance, it did so in part qualitative and part quantitative terms. In the designation of critical habitat for the Gulf sturgeon, for example, it described the benefits of inclusion as "low" and the direct costs of inclusion as exceeding \$22.7 million over the next ten years, but made no effort to quantify secondary costs, stating simply that they "may" also be "high." See Gulf Sturgeon Critical Habitat Designation, 68 Fed. Reg. 13,370, 13,401 (Mar. 19, 2003). Interestingly, the \$22.7 million cost figure is substantially lower than some of the costs that FWS has deemed "not significant" in other contexts. See *infra* note 242.

<sup>242</sup> The economic analysis for the San Bernardino kangaroo rat initially estimated critical habitat costs at between \$4.4 million and \$28.2 million over ten years. After public comment, a revised economic analysis put the figure at between \$15.7 million and \$130.7 million. The revised cost estimate was still deemed "not significant" by FWS. See Kangaroo Rat Critical Habitat Designation, 67 Fed. Reg. 19,811, 19,831 (Apr. 23, 2002). See also Rio Grande Silvery Minnow Critical Habitat Designation, 68 Fed. Reg. 8088, 8128 (Feb. 19, 2003) (costs of \$1.9 to \$16.2 million annually deemed not "significant"—referencing Exec. Order 12,866's \$100 million threshold for "significant regulatory action").

<sup>243</sup> See Sunstein, *supra* note 227, at 2292 ("For a lawyer on either side, it is not hard to argue that unquantified benefits should be quantified.").

## V. REMEMBERING THE VIRTUES OF SHORT-CUT STANDARDS

Cost-benefit analysis has a particular meaning and a credibility today that it did not have twenty-five years ago when the economic analysis requirement for critical habitat designation was first added to the ESA. Indeed, formal economic cost-benefit analysis now enjoys a level of acceptance and credibility in both academic and government circles that was unthinkable three decades ago.<sup>244</sup> Today, we are far quicker to assume that any effort to balance costs and benefits should entail a formal, quantified cost-benefit analysis performed by trained economists. Therefore, in evaluating strategies for implementing this provision of the ESA, it is important to understand the attitude toward cost-benefit analysis that prevailed in the 1970s. Doing so will help us to understand the legislative history behind this 1978 provision of the ESA. But more importantly, an examination of the regulatory tools of the 1970s can serve to break us out of the dichotomized pattern of thought that sees formal economic cost-benefit analysis as the only alternative to absolutism.

A. *Congress's Pervasive Use of Short-Cut Environmental Standards in the 1970s*

In the 1970s, lawmakers in Washington viewed formal economic cost-benefit analysis with considerable skepticism and suspicion.<sup>245</sup> A House subcommittee report issued in 1976 observed that scientific uncertainty from numerous sources plagued efforts to quantify relevant factors and concluded that “[t]he limitations on the usefulness of benefit/cost analysis in the context of health, safety, and environmental regulatory decision-making are so severe that they militate against its use altogether.”<sup>246</sup> A 1978 study on federal regulation by the Senate Committee on Government Affairs took a similar view:

Where economic regulation is concerned, [cost-benefit] analysis can be more easily applied, since there the consequences are usually capable of being reduced to dollar and cent terms. Such is not always the case with health, safety and environmental regulation. Here it is extremely difficult to quantify benefits since they are subject to great uncertainty and often become ap-

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<sup>244</sup> See *supra* notes 13–33 and accompanying text.

<sup>245</sup> ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 363–64 (4th ed. 2003) (“[T]he climate in Washington in the 1970s was relatively inhospitable to efforts to apply quantitative methods to regulatory issues involving health and safety, especially when those efforts were ultimately directed toward use in a cost-benefit or risk-benefit analysis.”).

<sup>246</sup> *Federal Regulation and Regulatory Reform: Report by the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, House of Representatives*, H. REP 75-931, 94th Cong. 2d Sess. 510–11, 515 (1976).

parent only with the passage of time. In addition, some important benefits—such as recreational or aesthetic values—are difficult if not impossible to quantify in any meaningful way . . . . Therefore there are serious limitations to the use of economic impact analysis in the health and safety area. . . . [D]ecisionmaking to protect the public from serious hazards should not be reduced to those terms.<sup>247</sup>

The courts were also skeptical of cost-benefit analysis. In 1981, the Supreme Court in effect adopted a default rule disfavoring it, refusing to require an agency to engage in cost-benefit analysis absent an explicit statutory directive.<sup>248</sup>

It is not surprising then that very few of the federal environmental statutes passed in the 1970s required agencies to engage in formal economic cost-benefit analysis. That is not to say that economic costs were irrelevant to environmental standard setting. Indeed, absolutist statutes like the ESA were relatively rare. In most instances, Congress opted instead for a middle course, adopting what I call “short-cut” standards. These standards allowed for some consideration of the costs of regulation, without requiring the substantial investment of resources necessary for agencies to fully quantify and balance costs and benefits. Congress recognized that the mind-boggling complexity of ecological processes and the attendant scientific uncertainty involved in efforts to evaluate environmental harms meant that an insistence on regulation based on perfect information was likely to result in no regulation at all.<sup>249</sup> Thus, short-cut standards arose from a recognition that an insistence on regulatory perfection would produce agency paralysis and that “[e]ffective environmental protection [sometimes] require[s] agencies to treat some scientifically and economically relevant, but currently unresolvable, issues as legally irrelevant.”<sup>250</sup>

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<sup>247</sup> *Study on Federal Regulation, vol. VI, Committee on Governmental Affairs, U.S. Senate, 96th Cong., 1st Sess. xxiv (1978)*. This quote indicates that Congress had two distinct concerns about efforts to monetize environmental values, which I refer to in subsequent discussions as the indeterminacy problem (“they are subject to great uncertainty”) and the incommensurability problem (they are “impossible to quantify”). See *infra* notes 297–313 and accompanying text.

<sup>248</sup> *American Textile Manufacturers Institute, Inc. v. Donovan*, 452 U.S. 490, 510–12 (1981). Agencies took a similar view. See, e.g., *Cotton Dust Regulation*, 43 Fed. Reg. 27,350 (1978) (OSHA preamble noting that “the benefits of the standard cannot rationally be quantified in dollars”).

<sup>249</sup> See THOMAS O. MCGARITY, *REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY* 140–41 (1991). See also Howard Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and “Fine-Tuning” Regulatory Reforms*, 37 STAN. L. REV. 1267, 1271 (1985) (discussing the “severe implementation constraints on environmental regulation”); *id.* at 1279–80 (“environmental complexity and uncertainty . . . together with budgetary and time restrictions, severely limit the ability of agencies to develop technocratic solutions for environmental problems”).

<sup>250</sup> Latin, *supra* note 249, at 1282; see also *id.* at 1283–84 (“Congress recognized the

### 1. Feasibility Standards

Many of these “short-cuts” took the form of “feasibility” standards. These standards essentially ignore the benefit side of the cost-benefit equation. Thus, they make no pretense of balancing the costs of regulation against an estimate of the health or environmental benefits to be gained. Instead, they set pollution limits at the lowest level technologically and economically feasible, assuming that such pollution reductions will deliver sufficient health and environmental benefits to be worth the costs.<sup>251</sup> While such standards are expressed in different ways, implying varying levels of stringency, they always include some consideration of economic as well as technological feasibility. The “BAT” standards for toxics under the Clean Water Act, for example, are based on the “best available technology economically achievable.”<sup>252</sup> Similarly, the New Source Performance Standards under the Clean Air Act are defined as an “application of the best system of emission reduction which (taking into account the cost of achieving such reduction . . .) the Administrator determines has been adequately demonstrated.”<sup>253</sup> These standards reflect a pragmatic judgment by Congress that a full-blown evaluation of the health and environmental benefits of certain environmental protection measures is too time- and resource-intensive to be warranted.<sup>254</sup>

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existence of pervasive scientific uncertainty when it enacted the principal regulatory statutes, and nonetheless chose to emphasize the need for prompt injury prevention over the need for an optimal balance between regulatory benefits and costs.”). Court opinions from the period exhibit the same concern. *See, e.g.,* *Lead Industries Assoc. v. EPA*, 647 F.2d 1130, 1154 (D.C. Cir. 1980) (“This court has previously noted that some uncertainty about the health effects of air pollution is inevitable. And we pointed out that ‘[a]waiting certainty will often allow for only reactive, not preventive regulat[ory action].’”) (citing *Ethyl Corp. v. EPA*, 541 F.2d 1, 25 (D.C. Cir. 1976) (*en banc*)).

<sup>251</sup> In the early 1970s, air and water pollution seemed so bad that few doubted that cleaning up as much as was economically feasible would be worth the cost. Today, even the staunchest proponents of cost-benefit analysis admit that, at least in the early years of environmental regulation, this approach was largely successful at producing regulations whose benefits exceeded their costs. Sunstein, *supra* note 3, at 1657 (“1970s environmentalism appears by most accounts, to survive cost-benefit balancing, producing aggregate benefits in the trillions of dollars, well in excess of the aggregate costs.”). *See also* Office of Management and Budget, Office of Information and Regulatory Affairs, *Informing Regulatory Decisions: 2003 Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities* (2003), at [http://www.whitehouse.gov/omb/infoereg/2003\\_cost-ben\\_final\\_rpt.pdf](http://www.whitehouse.gov/omb/infoereg/2003_cost-ben_final_rpt.pdf) (examination of 107 major rules issued over past ten years finding total quantifiable benefits of \$146 billion to \$230 billion and costs of \$36 billion to \$42 billion and finding majority of benefits attributable to clean-air rules issued by EPA).

<sup>252</sup> 33 U.S.C. § 1311(b)(2)(A) (2000).

<sup>253</sup> 42 U.S.C. § 7411(a)(1) (2000).

<sup>254</sup> *See* Latin, *supra* note 249, at 1330 (“If society decides to protect its citizens against potentially severe but currently indeterminate risks, regulators may have no recourse other than to adopt relatively crude decision-making criteria that make some logically relevant issues legally irrelevant . . . .”); McGarity, *supra* note 4, at 2374 (“The technology-based approach reflects a normative choice about the proper balance between lives and monetary costs. It says that we ought to do ‘the best that we can’ to protect human health from envi-

In the late 1970s and early 1980s, industry argued in a series of cases that these feasibility standards contained an implicit requirement that agencies perform a formal cost-benefit analysis. The argument was that an environmental control could not be considered economically “feasible” if the benefits produced could not be shown to outweigh the costs imposed.<sup>255</sup> In a case challenging the Occupational Safety and Health Administration’s (OSHA) regulation of cotton dust in textile plants, the D.C. Circuit rejected this argument, holding that Congress had consciously chosen a standard that did not require a formal quantified cost-benefit analysis in order to avoid miring the agency in time-consuming and costly studies that were unlikely to yield conclusive results anyway.<sup>256</sup> According to the court, Congress’s adoption of a feasibility standard reflected its wish to promote prompt attention to a problem over perfect accuracy. Indeed, the court expressed substantial skepticism about the quality of the results that could be achieved by formal cost-benefit analysis:

[C]ost-benefit analysis would not necessarily improve agency health and safety determinations. These techniques require the expression of costs, benefits and performance in often arbitrary, measurable terms. They may hide assumptions and qualifications in the seeming objectivity of numerical estimates. Especially where a policy aims to protect the health and lives of thousands of people, the difficulties in comparing widely dispersed benefits with more concentrated and calculable costs may overwhelm the advantages of such analysis.<sup>257</sup>

The legislative history of the Occupational Safety and Health Act indicated that Congress shared these doubts about the efficacy of cost-benefit analysis. As one member of Congress put it, “[w]e are talking about peo-

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ronmental contaminants . . . . Its great virtue is that it permits the agency to accomplish real improvement in a reasonable period of time.”).

<sup>255</sup> See, e.g., *United Steel Workers of America v. Marshall*, 647 F.2d 1189, 1263 n.102 (D.C. Cir. 1980).

<sup>256</sup> *Am Fed’n of Labor & Cong. of Indus. Org. v. Marshall*, 617 F.2d 636, 657–58, (D.C. Cir. 1979) (expressing concern about adding “substantial additional cost and delay to an already costly and prolonged rulemaking proceeding”); *id.* at 665 n.172 (noting the difficulties in estimating the harm sought to be prevented by the regulation of cotton dust: “Congress wished to avoid administrative paralysis caused by experts’ debates . . . . Certainly, it would not have wanted administrative paralysis caused by debate over a standard’s cost and benefits.”). The court also based its holding in part on the statutory provision directing the agency to promulgate standards based on the “best available evidence.” *Id.* at 658, 665 n.172. Similar language appears in the ESA with respect to FWS’s duty to designate critical habitat. See 16 U.S.C. § 1532(b)(2) (2000) (critical habitat to be designated on the basis of the best scientific data available). See also *United Steel Workers of Am. v. Marshall*, 647 F.2d at 1266 (rejecting industry argument that OSHA should have performed cost-benefit analysis in setting standard for lead).

<sup>257</sup> *AFL-CIO v. Marshall*, 617 F.2d at 665.

ple's lives, not the indifference of some cost accountants."<sup>258</sup> The Supreme Court granted certiorari in the cotton dust case and affirmed the D.C. Circuit's refusal to engraft cost-benefit analysis onto the Occupational Safety and Health Act's feasibility standard. In so doing, the high court adopted a general presumption disfavoring cost-benefit analysis: if an agency is to engage in cost-benefit balancing, Congress must make its intent clear on the face of the statute.<sup>259</sup>

In one instance, an attempt by Congress to mandate a more exacting standard-setting approach was such a colossal failure that Congress went back to the drawing board just five years later and replaced it with a short-cut feasibility standard. The original 1972 Clean Water Act generally employed feasibility standards for setting limits on industrial water pollution. With respect to toxic water pollutants, however, Congress adopted a stricter standard that would ensure that discharge limits pro-

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<sup>258</sup> LEGISLATIVE HISTORY OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, at 510 (1971). See also H.R. REP. NO. 91-1291, at 35 (1970) ("Even the price of one life is too expensive when a meaningful occupational safety and health law could save many lives . . . . The well-being of every American working man and woman is an essential human right which we can no longer deny.") (quoted in *AFL-CIO v. Marshall*, 617 F.2d at 664, n.165); *Indus. Union Dep't v. Am. Petroleum Inst.*, 448 U.S. 607, 719 n.32 (1980) (Marshall, J., dissenting) (noting that "Congress's antipathy toward cost-benefit balancing is evident throughout the legislative history of the [Occupational Safety and Health] Act").

<sup>259</sup> *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 510-11 (1981). This presumption was recently reaffirmed in *Whitman v. Am. Trucking Ass'ns., Inc.*, 531 U.S. 457, 467 (2001), in which the Supreme Court "refus[ed] to find implicit in ambiguous sections of the [Clean Air Act] an authorization to consider costs that has elsewhere, and so often, been expressly granted." *But see id.* at 490 (Breyer, J., concurring) ("I believe that, other things being equal, we should read silences or ambiguities in the language of regulatory statutes as permitting, not forbidding, [balancing costs against health benefits].").

Even those who advocated cost-benefit balancing by agencies in the 1970s did not promote the kind of full-blown, quantified cost-benefit analysis that is prevalent today. In a line of cases prior to the Supreme Court's cotton dust opinion, for example, the Fifth Circuit held that feasibility standards did require a cost-benefit analysis, but the court made clear that it did not expect these analyses to be "elaborate." *Am. Petroleum Inst. v. Occupational Safety and Health Admin.*, 581 F.2d 493, 503 (5th Cir. 1978), *aff'd*, 448 U.S. 607 (1980). Rather, the court envisioned agencies engaging in something more akin to the kind of rough qualitative balancing tests performed by judges in tort law. See *Aqua Slide 'N' Dive Corp. v. Consumer Product Safety Comm'n*, 569 F.2d 831, 839 (5th Cir. 1978) (analogizing to "a balancing test like that familiar in tort law") (quoting *Forrester v. Consumer Product Safety Comm'n*, 559 F.2d 774, 789 (D.C. Cir. 1977)). Justice Powell, concurring in the Benzene case, argued that the OSH Act required OSHA to engage in a kind of cost-benefit analysis. But he clearly did not have in mind a fully quantified analysis either:

The statutory preference for the "best available evidence" implies that OSHA must use the best known techniques for the accurate estimation of risks and benefits when such techniques are available. But neither the statute nor the legislative history suggests that OSHA's hands are tied when reasonable quantification cannot be accomplished by any known methods. In this litigation, OSHA found that "it is impossible to precisely quantify the anticipated benefits."

448 U.S. at 666.

tected public health “with an ample margin of safety.”<sup>260</sup> This health-based standard, though attractive in theory, proved unworkable in practice. The scientific uncertainties associated with attempting to correlate specific toxic pollutants to particular health effects and identifying safe exposure levels made the task unworkable. The resulting agency paralysis was so severe that after four years in which EPA failed to promulgate even one toxic water pollution standard, environmentalists, EPA and industry all agreed that, despite all of its inaccuracies, a feasibility standard was preferable. In a consent decree settling a lawsuit by environmental groups challenging EPA’s inaction, all three constituencies agreed that EPA should abandon any attempt to quantify the health effects of toxic water pollutants, and instead set standards based on the best available control technology.<sup>261</sup> This consent decree was subsequently ratified in the 1977 amendments to the Clean Water Act, thus bringing the standard for toxics in line with the other short-cut feasibility standards imposed by the Clean Water Act.<sup>262</sup>

## 2. *Nationally Uniform Standards*

Another “short-cut” frequently employed by Congress in the 1970s that sacrificed perfect accuracy for administerability was the adoption of nationally uniform standards. A number of the early environmental statutes, including the Clean Water Act and the Clean Air Act, took this approach.<sup>263</sup> The central innovation of the 1972 Clean Water Act, for example, was to replace the old system of water pollution control standards based on locally specific assessments of ambient water quality with one set of national standards that imposed uniform pollution limits on discharges regardless of the existing quality of the receiving waters.<sup>264</sup>

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<sup>260</sup> 33 U.S.C. § 1317(a)(4) (2000).

<sup>261</sup> See PERCIVAL, *supra* note 245, at 624; *Natural Resources Defense Council v. Train*, No. 2153-73, 1976 U.S. Dist. LEXIS 14700 (D.D.C. June 9, 1976).

<sup>262</sup> See Clean Water Act of 1977, Pub. L. No. 95-217, § 53(a), 91 Stat. 1566, 1589–90 (1977); Staff of House Comm. on Pub. Works and Transp., 95th Cong., IMPLEMENTATION OF THE FEDERAL WATER POLLUTION CONTROL ACT: SUMMARY OF HEARINGS ON THE REGULATION AND MONITORING OF TOXIC AND HAZARDOUS CHEMICALS UNDER THE FEDERAL WATER POLLUTION CONTROL ACT 28 (Comm. Print 1977) (EPA Administrator Costle testifying that “experience with the alternative approaches . . . offered by Section 307(a) on one hand and technology-based limitations on the other leave us firmly convinced that for the bulk of known or suspected toxics of concern, technology-based standards established on an industry-by-industry basis are by far the most feasible to implement and administer”).

The Clean Air Act’s provision directing EPA to set health-based standards for hazardous air pollutants has yielded similar results. EPA has promulgated very few hazardous air pollutant standards and some of those it has issued have been based on the best available control methods rather than health data despite the absence of any authority for such an approach in the statute. See Latin, *supra* note 249, at 1309; David P. Currie, *Air Pollution: Federal Law and Analysis* § 3.28 (1981).

<sup>263</sup> See 33 U.S.C. § 1311 (2000); 42 U.S.C. § 7411 (2000).

<sup>264</sup> See *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1041–42 (D.C. Cir. 1978) (CWA

Such schemes have been subject to considerable criticism on the grounds that they fail to account for significant local variations in the impact of pollution discharges.<sup>265</sup> For example, a discharge of a given amount of pollution into a small trout stream in Pennsylvania causes more harm and therefore warrants more costly pollution control than a discharge of the same amount of pollution into Lake Superior. Nationally uniform discharge limits therefore allocate pollution control resources inefficiently and result in both over-regulation (of dischargers on Lake Superior) and under-regulation (of dischargers on small streams). Even recognizing these inefficiencies, however, Congress nonetheless opted for the short-cut approach of nationally uniform standards—again choosing ease of administration over perfect accuracy.<sup>266</sup>

### 3. Limited Balancing Tests

Even in the few instances in the 1970s in which Congress explicitly required cost-benefit balancing, it did not expect agencies to engage in formal economic cost-benefit analysis. Rather, it intended the agencies to perform a “limited cost-benefit analysis.” This did not require monetization of costs and benefits but simply called for an apples-to-oranges comparison to ensure that costs were not grossly disproportionate to benefits.

The Toxic Substances Control Act,<sup>267</sup> for example, passed in 1976, is frequently cited as the classic cost-benefit balancing statute.<sup>268</sup> It authorizes EPA to regulate toxic chemicals that “present[ ] . . . an unreasonable

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precludes EPA from taking receiving water capacity into account in setting national effluent limitations); *Crown Sumpson Pulp Co. v. Costle*, 642 F.2d 323 (9th Cir. 1981), *opinion on remand from* 445 U.S. 193 (1980) (receiving water quality not a “fundamentally different” factor to be considered by EPA in granting variances from nationally uniform standards).

<sup>265</sup> See, e.g., Bruce A. Ackerman and Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1335 (1985) (criticizing uniform BAT standards under CWA and CAA for “ignoring geographic variations in pollution effects”); James E. Krier, *The Irrational National Air Quality Standards: Macro- and Micro- Mistakes*, 22 U.C.L.A. L. REV. 323 (1974) (criticizing CAA’s uniform national ambient standards).

<sup>266</sup> See *Weyerhaeuser*, 590 F.2d at 1041–42 (in deciding to require nationally uniform effluent limitations under the CWA’s NPDES permit program, Congress determined that scientific uncertainty involved in attempting to assess the benefits of pollution control to particular water bodies and the importance of avoiding further administrative delay in addressing nation’s water pollution problem made a locality-by-locality approach impracticable).

Nationally uniform standards also reflected Congress’s concern that leaving standard setting to the states might trigger a “race to the bottom” in which localities set environmental standards inefficiently low in an effort to compete for development and jobs. See generally Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570 (1996); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the “Race to the Bottom” Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992).

<sup>267</sup> 15 U.S.C. §§ 2601–2692 (2000).

<sup>268</sup> See PERCIVAL, *supra* note 245, at 407.

risk of injury to health or the environment.”<sup>269</sup> In order to evaluate the “unreasonableness” of a risk, EPA must assess the economic benefits of the chemical to society and the “economic consequences of the rule.”<sup>270</sup> The legislative history makes clear, however, that Congress did not intend this balancing of costs and benefits to take the form of a formal or quantified cost-benefit analysis. Indeed, the House Committee report noted that a “formal benefit-cost analysis . . . would not be very useful” given the difficulties of assigning monetary values to the costs and benefits of chemical regulation.<sup>271</sup> Similarly, the Senate committee report stated “[i]n comparing risks, costs, and benefits . . . it is important to recognize that one is weighing noncommensurates and it is not feasible to reach a decision just on the basis of quantitative comparisons.”<sup>272</sup> The report further indicated that Congress expected EPA to give “full consideration” to the “burdens of human suffering and premature death.”<sup>273</sup>

The Clean Water Act provides another example of a limited cost-benefit test. In setting industry-wide effluent standards to be met by 1977, the 1972 Act directed EPA to consider the costs imposed on industry by the standards “in relation to the effluent reduction benefits to be achieved.”<sup>274</sup> While clearly requiring a cost-benefit analysis of some kind, this statutory language was understood by Congress and the courts to require no more than a “limited cost-benefit analysis,” intended to cull out only the most extreme cases where “the additional degree of effluent reduction is wholly out of proportion to the costs.”<sup>275</sup> Concerned that EPA not be “bog[ged] down in burdensome proceedings” the D.C. Circuit held that “cost need not be balanced against benefits with pinpoint preci-

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<sup>269</sup> 15 U.S.C. § 2605(a) (2000).

<sup>270</sup> 15 U.S.C. § 2605(c)(1) (2000).

<sup>271</sup> H.R. Rep. No. 94-1341 at 14 (1976).

<sup>272</sup> S. REP. NO. 94-698 at 13 (1976), *reprinted in* 1976 U.S.C.C.A.N. 4491, 4503.

<sup>273</sup> *Id.* See also *id.* at 8, 10, 20 (emphasizing statutory language at 15 U.S.C. § 2605(c)(1)(D) (2000) that limits EPA’s consideration to those “economic consequences” that are “reasonably ascertainable”); *id.* at 75 (noting that language in TSCA requiring consideration of economic impacts included “in lieu of other proposals [that would have provided for] the mandatory preparation of detailed economic impact statements”).

The Fifth Circuit took a different view of the statute in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), striking down EPA’s asbestos rule for its failure to adequately quantify costs and benefits. The contrast between this opinion’s approach toward cost-benefit analysis and that of the Congress that passed the statute in 1976 reflects the dramatic shift in attitudes that occurred during the 1980s and 1990s regarding the credibility and efficacy of formal economic cost-benefit analysis.

<sup>274</sup> 33 U.S.C. §§ 1311(b)(1)(A), 1314(b)(1)(B) (2000) (requiring adoption of the “best practicable control technology currently available”).

<sup>275</sup> A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 170 (1973); see also *Weyerhaeuser v. Costle*, 590 F.2d 1011, 1045 n.52 (D.C. Cir. 1978) (citing legislative history); *EPA v. Nat’l Crushed Stone Ass’n*, 449 U.S. 64, 71 n.10 (1980); *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 656–57 n.37 (1st Cir. 1979); Barry A. Pineles, *Cost-Benefit Analysis and the Federal Water Pollution Control Act Amendments of 1972: A Proposal for Congressional Action*, 67 IOWA L. REV. 1057 (1982).

sion.”<sup>276</sup> Indeed, the court held that EPA was not required to monetize benefits at all; an apples-to-oranges comparison of dollars spent per tons of pollution removed was sufficient.<sup>277</sup>

Another early cost-benefit balancing statute was the National Environmental Policy Act (“NEPA”), the first in the wave of environmental statutes passed by Congress in the 1970s.<sup>278</sup> Its requirement that federal agencies prepare environmental impact statements evaluating the impacts of proposed actions and weighing alternatives implicitly requires a kind of cost-benefit balancing.<sup>279</sup> But here too, Congress rejected formal economic cost-benefit analysis. Indeed, NEPA aimed explicitly at ensuring that nonquantifiable environmental values be put on an equal footing with economic and technical considerations in government decision-making.<sup>280</sup> Consistent with this mission, NEPA regulations first promulgated in 1978 explicitly discourage agencies from preparing fully quantified cost-benefit analyses. “[T]he weighing of the merits and drawbacks of various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.”<sup>281</sup> Thus, NEPA also reflects a short-cut approach to cost-benefit balancing, eschewing a fully quantified formal cost-benefit analysis in favor of a limited, qualitative approach.

#### *B. Congressional Intent Behind the Economic Analysis Requirement for Critical Habitat Designations*

Thus, the Congress that amended the ESA in 1978 to allow economic considerations to play a role in critical habitat designation was a Congress that was both skeptical of the efficacy of formal economic cost-benefit analysis and wary of the administrative paralysis that an insistence on regulatory perfection could produce. This was a Congress that had demonstrated over and over again during the 1970s its preference for short-cut standards over fully quantified formal economic cost-benefit analysis. The language of the 1978 amendments as well as their legislative history demonstrate that Congress’s approach to the economic analysis of critical habitat designation in 1978 was consistent with its general

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<sup>276</sup> *Weyerhaeuser*, 590 F.2d at 1048.

<sup>277</sup> *See id.* at 1045, 1047.

<sup>278</sup> 42 U.S.C. §§ 4321–4370(f) (2000). NEPA was actually passed by Congress in 1969 and signed into law by President Nixon on January 1, 1970.

<sup>279</sup> *See* 42 U.S.C. § 4332(C) (2000). *See also* *Calvert Cliffs Coordinating Comm. v. U.S. Atomic Energy Comm’n*, 449 F.2d 1109, 1123 (D.C. Cir. 1971) (“In each individual case, the particular economic and technical benefits of planned action must be assessed and then weighed against the environmental costs.”).

<sup>280</sup> NEPA calls on federal agencies to “identify and develop methods and procedures . . . which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” 42 U.S.C. § 4332(B) (2000).

<sup>281</sup> 40 C.F.R. § 1502.23 (2002).

attitude toward environmental standard setting in the 1970s. That is, Congress never intended the economic analysis that accompanies critical habitat designation to take the form of a formal economic cost-benefit analysis. Rather, Congress envisioned the same kind of limited short-cut balancing test found in other environmental statutes of that era.

### *1. Statutory Language*

First, recall that the language Congress used in imposing the economic analysis requirement directed the Secretary to “consider[] the economic impact, *and any other relevant impact*, of specifying any particular area as critical habitat.”<sup>282</sup> This language signifies a rejection of formal economic cost-benefit analysis, which is built on the assumption that all values can be expressed in economic terms and which thus views all impacts as “economic impacts.” By directing the Secretary to consider “other relevant impacts” in addition to “economic impacts,” Congress was clearly adopting the view that at least some of the impacts of critical habitat designation are not reducible to economic terms. This language reflects Congress’s view, expressed in the legislative history of the original Act as well as the 1978 Amendments,<sup>283</sup> that certain values associated with endangered species simply cannot be expressed in monetary terms.

Second, taken as a whole, the various provisions relating to critical habitat that Congress added to the ESA in 1978 demonstrate two overriding concerns. Congress wanted both to provide FWS added discretion and flexibility to consider economic impacts in the designation of critical habitat in appropriate circumstances, and to avoid delay in the promulgation of critical habitat designations. Both of these concerns are consistent with the flexibility and streamlining associated with a short-cut approach.

The ESA’s statutory language gives discretion to the Secretary. It mandates only that the Secretary “tak[e] into consideration” the economic impact of critical habitat designation.<sup>284</sup> Her duty to actually modify a designation based on economic considerations is entirely discretionary. Thus, as the legislative history confirms,<sup>285</sup> Congress sought merely to give the Secretary flexibility, not to tie her down to some set formula or method.

The 1978 Amendments also included provisions that for the first time set deadlines for the designation of critical habitat. These provisions require the agency to designate critical habitat concurrently with listing a species, unless critical habitat is “not then determinable.”<sup>286</sup> Even in that circumstance, designation can only be delayed for one additional year.

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<sup>282</sup> 16 U.S.C. § 1533(b)(2) (2000) (emphasis added).

<sup>283</sup> See *infra* notes 289–293 and accompanying text.

<sup>284</sup> 16 U.S.C. § 1533(b)(2) (2000).

<sup>285</sup> See *infra* notes 294–295 and accompanying text.

<sup>286</sup> 16 U.S.C. § 1533(b)(6)(C)(ii) (2000); see also *id.* § 1533(a)(3).

Congress clearly wanted critical habitat to be designated at the time of listing and was concerned that it not be delayed much beyond that, even under extraordinary circumstances. This indicates that Congress did not anticipate that the economic analysis would be an elaborate or time-consuming process.

This interpretation is confirmed by the directive that at the end of the one-year delay, the agency “must publish a final regulation *based on such data as may be available at that time.*”<sup>287</sup> This language does not countenance any delay for conducting the expensive and time-consuming research necessary for a formal economic cost-benefit analysis. Indeed, the courts have frequently interpreted similar language in other statutes as evidencing Congress’s conscious decision to choose prompt agency action over regulatory perfection.<sup>288</sup>

## 2. Legislative History

Nor does the legislative history of the 1978 amendments to the ESA provide any indication that Congress intended the agencies to conduct formal economic cost-benefit analysis in connection with critical habitat designations. On the contrary it indicates, first, that Congress viewed the values of species preservation as unquantifiable, and second, that Congress was primarily concerned with giving the agency flexibility and discretion with respect to the consideration of economic factors rather than with mandating any particular method of analysis.

### a. Congress Viewed the Values of Endangered Species as Unquantifiable

The legislative history makes clear that Congress continued to believe in 1978, as it did in 1973, that the value of endangered species cannot be meaningfully ascertained, let alone quantified.

The real tragedy associated with massive species extinction is that we may never fully comprehend what we have lost. We know that many species can have significant biological and sci-

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<sup>287</sup> 16 U.S.C. § 1533(b)(6)(C)(ii) (2000) (emphasis added).

<sup>288</sup> See, e.g., *United Steelworkers of America, AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1266 (D.C. Cir. 1980) (construing OSH Act provision requiring OSHA to set standard based on the “best available evidence”: “OSHA cannot let workers suffer while it awaits the Go dot of scientific certainty.”); *id.* at 1228 n.54 (“In the cotton dust case we held that the requirement of ‘best available evidence,’ so far from constraining OSHA, was intended to permit the agency to act immediately to protect workers from a disease even when contemporary science does not fully comprehend how the disease develops”); *Indus. Union Dep’t, AFL-CIO v. American Petroleum Inst.*, 448 U.S. 607, 656 (1980) (plurality opinion) (under “best available evidence” standard “OSHA is not required to support its finding that a significant risk exists with anything approaching scientific certainty”).

entific value. Most of our drugs are produced from plants, for example. We also know that many species have a tremendous esthetic value which is difficult if not impossible to quantify. Who can quantify, for example, the value of the passenger pigeon, which once numbered in the millions and was a valuable food source, or the grizzly bear which is now reduced to remnant populations in the Continental United States. But for the vast majority of the species that have been driven to extinction over the last two centuries, we have absolutely no idea what scientific, or esthetic values they contained. And, there is virtually no way for us to find out. They are simply gone.<sup>289</sup>

Congress's skepticism about our ability to quantify the costs and benefits of species preservation seemed to take two distinct forms. First, Congress expressed the view that any attempt to quantify the value of an endangered species will ultimately be indeterminate because we simply do not have the scientific knowledge necessary to assess their true value.<sup>290</sup> This concern underlies the statement above that "we may never fully comprehend what we have lost." Senator Mark Hatfield expressed the same sentiment when, speaking before a Senate subcommittee on an early version of the 1973 Act, he said, "Each species is a perishable resource of unpredictable value. Fifty years ago, few would have seen the value of the fruit fly for research in genetics or the value of primates to advance biometrical and pharmaceutical sciences."<sup>291</sup>

But Congress also expressed a second, more profound concern that goes beyond simple lack of knowledge. That is that even if we had perfect scientific knowledge to predict all of the scientific, medical, pharmaceutical, and commercial values that a species might someday provide to humans, there would remain certain dimensions of value—esthetic or spiritual value, for example—that are simply "impossible to quantify" because they are incommensurable with economic values.<sup>292</sup> In the words of one of the ESA's sponsors in 1973, "Most animals are worth very little in terms of dollars and cents. However, their esthetic value is great indeed. The pleasure of simply observing them . . . is unmeasurable."<sup>293</sup>

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<sup>289</sup> 124 CONG. REC. 38,132 (daily ed. Oct. 14, 1978) (statement of Rep. Murphy).

<sup>290</sup> This view is consistent with a well-established body of academic literature that critiques formal economic cost-benefit analysis generally on the grounds of indeterminacy. For a discussion of this literature, see *infra* notes 311–313 and accompanying text.

<sup>291</sup> *Endangered Species Conservation Act of 1972: Hearings on S.249, S.3199, and S.3818 Before the Subcomm. on the Env't of the Senate Comm. On Commerce*, 92d Cong. 65 (1972).

<sup>292</sup> This view is consistent with a well-established body of literature that critiques cost-benefit analysis on the ground of incommensurability. For a discussion of this literature, see *infra* notes 297–310 and accompanying text.

<sup>293</sup> 119 CONG. REC. 25,675 (July 24, 1973) (statement of Sen. Williams).

If Congress's view that endangered species are of "incalculable value" stemmed only from the first concern—indeterminacy arising from our lack of scientific knowledge—then an argument could conceivably be made that scientific advances over the past three decades have so improved our abilities to predict and calculate the values of species and ecosystems as to obviate that concern. Because Congress's skepticism about quantification was also rooted in the second concern about incommensurability, however, it remains valid today regardless of advances in scientific knowledge. Furthermore, as I argue in Part V.C.2, Congress's concern about indeterminacy also remains valid today because the multiple layers of scientific uncertainty associated with attempting to predict and assess the value of species and ecosystems continue to pose insurmountable obstacles to meaningful quantification.

*b. Congress Aimed Primarily To Give Flexibility to the Agencies*

The legislative history accompanying the 1978 amendments also makes clear that Congress did not view the economic analysis provision as mandating any particular method or type of analysis. Congress was primarily concerned with providing the Secretary with more discretion and more flexibility in designating critical habitat. Indeed, the word "flexibility" appears over and over again throughout the legislative history in connection with this provision.<sup>294</sup> The House Report emphasized the discretion accorded the Secretary: "The Secretary is not required to give economics or any other 'relevant impact' predominant consideration in his specification of critical habitat. . . . The consideration and weight given to any particular impact is *completely within the Secretary's discretion.*"<sup>295</sup> Rather than mandating an approach that would ensure that critical habitat was never designated when economic costs outweighed benefits, Congress sought only to give the Secretary the flexibility to deviate from a purely biological approach when she deemed it appropriate.

In sum, the Congress that passed the major environmental statutes of the 1970s and added the economic analysis requirement to the critical habitat provisions of the ESA in 1978 was highly skeptical of formal economic cost-benefit analysis. Congress was acutely aware that such analy-

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<sup>294</sup> See, e.g., H.R. REP. NO. 95-1625, at 17 (1978) ("The result of the committee's proposed amendment would be increased flexibility on the part of the Secretary in determining critical habitat"). Accord Darin, *supra* note 135, at 218 ("Flexibility was . . . cited as the primary concern in amending the Act to allow [consideration of economic impacts in critical habitat designation].").

<sup>295</sup> H.R. REP. NO. 95-1625, at 17 (emphasis added). This is consistent with the statutory language, which makes the Secretary's power to exclude areas from critical habitat based on an economic analysis entirely discretionary. 16 U.S.C. § 1533(b)(2) (2000) ("The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat.").

sis came with its own price tag and that given the problems of scientific uncertainty and incommensurability that plague attempts to quantify environmental values, any attempt at such regulatory perfection was likely to lead instead to regulatory paralysis. The language and legislative history of the 1978 amendments to the ESA demonstrate that Congress never intended to mandate a formal economic cost-benefit analysis of critical habitat designations. Rather, Congress envisioned the same kind of short-cut, limited balancing test it had so frequently called for in other environmental statutes of that era.

### *C. Why Congress Got It Right*

My contention that Congress did not intend to compel the agencies to conduct formal economic cost-benefit analyses in connection with critical habitat designations, of course, begs what may now be an even more important question: was Congress right? Is the 1970s Congress's distrust of formal economic cost-benefit analysis and its preference for short-cut standards simply an outdated relic of another era, or do these views retain vitality today? Are the concerns that prompted Congress to choose short-cut standards so often in the 1970s still relevant today in the context of critical habitat designation?

I think Congress was right, and that a close contextual examination of the problems that arise in attempting to apply formal economic cost-benefit analysis to critical habitat designations demonstrates that a short-cut qualitative balancing test that makes no pretense of converting all costs and benefits to monetary terms is the preferable approach.<sup>296</sup> Any attempt to apply formal economic cost-benefit analysis to critical habitat designations will falsely force incommensurable values into a common metric, will be hopelessly indeterminate, will undermine the democratic process, and will divert precious resources from the real business of protecting imperiled species.

#### *1. Incommensurability*

There is a substantial literature critiquing formal economic cost-benefit analysis as a method for government decision-making on what I will loosely call the ground of incommensurability.<sup>297</sup> These critiques

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<sup>296</sup> Cass Sunstein has made the claim that cost-benefit analysis has the "virtue" of "real world administrability." CASS R. SUNSTEIN, *FREE MARKETS AND SOCIAL JUSTICE* 246 (1996). My examination of the "real world" application of cost-benefit analysis to critical habitat designation under the ESA refutes that claim, at least in the context of endangered species.

<sup>297</sup> See Jane B. Baron & Jeffrey L. Dunoff, *Against Market Rationality: Moral Critiques of Economic Analysis in Legal Theory*, 17 *CARDOZO L. REV.* 431, 485–87 (1996) (identifying "a commitment to the incommensurability of values" as a common theme among environmental ethicists critiquing economic analysis).

contend that cost-benefit analysis is inherently flawed because it is inappropriate to measure diverse goods along a single monetary metric.<sup>298</sup> Such measurement fails to provide an accurate description of how human beings actually value goods, things, relationships, and states of affairs, because we value such matters in diverse ways. We would never offer a friend a cash payment to “compensate” her for canceling a lunch date, because we view friendship as simply incommensurable with money.<sup>299</sup> Nor would a pet owner consider the “opportunity costs” of not eating her pet or not selling it for laboratory experiments.<sup>300</sup> Similarly, many people balk at the prospect of attaching a dollar figure to the loss of an endangered species, the destruction of a pristine natural area, or the loss of a human life because they view these values as simply incommensurable with market commodities and thus not measurable along a monetary metric.<sup>301</sup> As discussed above, members of Congress arguably expressed this view in enacting the ESA (and amending it in 1978) when they called the value of endangered species “incalculable,” “priceless,” and “impossible to quantify.”<sup>302</sup>

A related argument contends that cost-benefit analysis confuses the preferences people have as consumers with the values they hold as citizens. Thus, one might very well, as a citizen, attend a town meeting and vehemently oppose the proposed construction of a shopping mall on the outskirts of town, and yet, as a consumer, choose to shop at the same mall once built.<sup>303</sup> Because cost-benefit analysis privileges consumer preferences and ignores citizen values, it is an inappropriate tool for evaluating social regulation. According to this view, social regulation does and should instead “express[ ] what we believe, what we are, what we stand for as a nation, not simply what we wish to buy as individuals.”<sup>304</sup>

These objections to formal economic cost-benefit analysis have particular force in the context of endangered species. Indeed, attempts to assign a value to endangered species are often cited as the paradigmatic example of the incommensurability problem.<sup>305</sup> Thus, even in his recent

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<sup>298</sup> See, e.g., Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779, 841 (1994); ELIZABETH ANDERSON, *VALUE IN ETHICS AND ECONOMICS* (1993); Sagoff, *supra* note 35, at 1393 (1981); Lawrence H. Tribe, *Ways Not to Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L. J. 1315 (1974); Steven Kelman, *Cost-Benefit Analysis: An Ethical Critique*, REGULATION 33 (Jan.-Feb. 1981).

<sup>299</sup> See Sunstein, *supra* note 298, at 785–86.

<sup>300</sup> ANDERSON, *supra* note 298, at 208; SUNSTEIN, *supra* note 298, at 793.

<sup>301</sup> SUNSTEIN, *supra* note 298, at 835–36.

<sup>302</sup> See *supra* notes 62, 63, and 289 and accompanying text.

<sup>303</sup> SAGOFF, *supra* note 19, at 171–72.

<sup>304</sup> SAGOFF, *supra* note 19, at 16–17; accord ANDERSON *supra* note 298, at 209–10.

<sup>305</sup> See, e.g., Sunstein, *supra* note 298, at 857 (“Suppose that a society is deciding whether to sacrifice a number of jobs in return for protecting endangered species. No unitary metric can be helpful here.”); Sagoff, *supra* note 35, at 1418–19 (using ESA as example of law based on citizen values rather than consumer preferences); ANDERSON, *supra* note 298, at 204–10.

writings advocating the use of formal economic cost-benefit analysis in most government decision-making, Cass Sunstein makes an exception for endangered species. Because the concern is about “genuinely irretrievable loss,” Sunstein suggests that protection of endangered species is “rooted in a theory of rights” and therefore an inappropriate subject for cost-benefit balancing.<sup>306</sup> Moreover, any recognition that species have some intrinsic moral standing or value separate and apart from their instrumental value to human beings must lead to a similar conclusion,<sup>307</sup> since cost-benefit analysis does not even purport to measure any such non-human values.<sup>308</sup>

Accordingly, there is a strong argument that it is simply wrong (normatively and descriptively) to attempt to measure the values of species preservation in general (and therefore the values of critical habitat designation in particular) along a monetary metric. The fact that such values are not measurable in monetary terms, however, does not mean that they cannot be subject to rational choice.<sup>309</sup> But public decisions regarding such matters should be a product of democratic deliberation, not the adding and subtracting of consumer preferences. And any balancing of costs and benefits involving such incommensurable values should be performed (if at all) in qualitative terms.<sup>310</sup>

## 2. Indeterminacy

Another set of critiques of formal economic cost-benefit analysis confront it on its own terms, arguing that even if it might be desirable to make decisions by monetizing and comparing costs and benefits, such monetization is inevitably impossible to perform.<sup>311</sup> Intractable valuation problems make any attempt to derive meaningful quantification of costs and benefits futile. These valuation problems run the gamut from the theoretical, like the offer/asking problem and the effect of wealth distribution on willingness to pay,<sup>312</sup> to the practical, like inadequate data and

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<sup>306</sup> SUNSTEIN, *supra* note 11, at 68. Not everyone shares Sunstein’s view that cost-benefit analysis is inappropriate for endangered species issues. *See, e.g.*, Thompson, *supra* note 11, at 1131; CHARLES C. MANN & MARK L. PLUMER, *NOAH’S CHOICE: THE FUTURE OF ENDANGERED SPECIES* (1995).

<sup>307</sup> Tribe, *supra* note 298, at 1315.

<sup>308</sup> *See* Thompson, *supra* note 11, at 1134.

<sup>309</sup> *See* ANDERSON, *supra* note 298, at 209–10; Sunstein, *supra* note 298, at 793.

<sup>310</sup> *See* ANDERSON, *supra* note 298, at 215.

<sup>311</sup> *See, e.g.*, Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 *STAN. L. REV.* 387 (1981); Heinzerling, *supra* note 4; Thomas O. McGarity, *Regulatory Analysis and Regulatory Reform*, 65 *TEX. L. REV.* 1243 (1987); William B. Rodgers, *Benefits, Costs, and Risks: Oversight of Health and Environmental Decision-making*, 4 *HARV. ENVTL. L. REV.* 191 (1980).

<sup>312</sup> The offer/asking problem arises from the demonstrable fact that the price people attach to a particular good varies, sometimes significantly, depending on whether they are asked how much money they would accept to give up an existing entitlement to the good, or how much money they would pay to acquire the good. People generally demand more to

scientific uncertainty.<sup>313</sup> The theoretical aspects of the indeterminacy critique apply to cost-benefit analysis of critical habitat designations just as they would in any other context. My focus here is on the practical sources of indeterminacy because these are areas in which critical habitat designation poses particular problems. Calculating the benefits of species preservation poses a paradigmatic example of the problems of scientific uncertainty and inadequate data. But even the costs side of the equation presents formidable obstacles.

*a. The Costs Calculation*

In Part IV.B.2.a, I describe FWS's current practice with respect to estimating the costs of critical habitat designation. As that description demonstrates, such estimates essentially involve predicting the future—predicting future patterns of development, the likelihood that such developments will trigger consultations and/or project modifications, the likely costs of such consultations or modifications, and so on. Accordingly, the seemingly scientific numbers produced by such analyses actually rest on multiple layers of guesses and simplifying assumptions, each of which is subject to challenge. And errors in the early layers multiply as each subsequent layer is added.<sup>314</sup> Thus, there is significant indeterminacy in simply trying to estimate the direct costs of critical habitat designation—that is, the total consultation and project modification costs incurred by gov-

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give up an existing entitlement than they would be willing to pay to acquire that entitlement. Yet, no one has been able to come up with a theoretically defensible basis on which to choose one value over the other as a basis for cost-benefit analysis. See Kennedy, *supra* note 311, at 401–22; Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669, 678–82 (1979).

A related problem arises from the fact that any measurement of willingness-to-pay is necessarily dependent on the distribution of wealth. In other words, since a person's willingness to pay depends in part on her ability to pay, a poor person's willingness to pay for a particular good will be generally lower than a rich person's. This in part explains the offer/asking problem: A person who already possesses an entitlement is "richer" than one who does not. But more broadly, any estimate of willingness-to-pay must necessarily assume some particular distribution of wealth. There is, however, no reasoned basis on which to choose one distribution of wealth over another for purposes of cost-benefit analysis. Indeed, the particular regulatory measure being considered may itself have some effect on the distribution of wealth. This renders willingness-to-pay a moving target, an inevitably indeterminate value. See Kennedy *supra* note 311, at 423–44; C. Edwin Baker, *The Ideology of the Economic Analysis of Law*, 5 PHIL. & PUB. AFF. 3 (1975); RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 13 (5th ed. 1998); Arthur Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451 (1974).

<sup>313</sup> MCGARITY, *supra* note 249, at 126–31.

<sup>314</sup> For example, the economic analysis for the San Bernardino kangaroo rat assumed, somewhat arbitrarily, that fifty percent of development projects in the critical habitat area would require a federal permit and therefore trigger Section 7 consultation. See *supra* notes 214–216 and accompanying text. Changing that estimate to an equally defensible figure of, say, twenty-five percent would reduce by half the final estimate of consultation and project modification costs and thereby drastically reduce the final cost figure.

ernment and private parties as a direct result of the critical habitat designation.

In addition, there is another whole category of costs that most of FWS's economic analyses to date have not even attempted to quantify—that is, the ripple effects on the rest of the economy caused by critical habitat designation. How do we, for example, measure the costs of the layoffs imposed by the construction company that loses revenues when the size of the housing development it was building has to be scaled back due to critical habitat designation? How do we measure the lost profits to the grocery stores and other local merchants who would have sold more goods had their customers not lost their jobs? How do we measure the increased profits to the neighboring developer whose houses now sell for more money because they are adjacent to protected open space? How do we measure the net effect on property tax revenues to local governments as offset by the lesser need to provide additional services and infrastructure to accommodate new residents?

The factors bearing on such secondary economic effects are obviously varied and complex and the difficulties associated with obtaining the relevant data daunting. Any effort to quantify such impacts requires sophisticated and complicated techniques and, of course, requires making a host of simplifying assumptions. One thorny problem is identifying the geographic scope of the analysis.<sup>315</sup> Should the analysis look for ripple effects only in the region directly affected or should it look throughout the national economy? Even if a regional scale is appropriate, how should the region be delineated?<sup>316</sup> As a result of these and other difficulties, most of FWS's economic analyses do not even mention secondary impacts. The few that have mentioned the issue have simply concluded that the difficulties in obtaining relevant data make quantitative estimates of secondary impacts not “practically feasible.”<sup>317</sup>

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<sup>315</sup> See *Middle Rio Grande Conservancy District v. Babbitt*, 206 F. Supp. 2d 1156, 1179–80 (D.N.M. 2000), *aff'd*, 294 F.3d 1220 (10th Cir. 2002) (criticizing FWS's economic analysis of critical habitat designation for the Rio Grande silvery minnow for emphasizing national over regional impacts). The temporal scope of the analysis also poses difficulties. Most of FWS's economic analyses limit their cost projections to only ten years. *But see* VERNAL POOL SPECIES EC. AN., *supra* note 194, at 16–17 (using 20-year time horizon). Obviously, a longer time horizon would exacerbate the uncertainties associated with estimating costs. See *Gulf Sturgeon Critical Habitat Designation*, 68 Fed. Reg. 13370, 13385 (Mar. 19, 2003). Yet a ten-year limit seems arbitrary, particularly when the time horizon for extinction of a species may be much longer and when the benefits of species preservation likely stretch far into the future.

<sup>316</sup> See PYGMY-OWL EC. AN., *supra* note 128, at 5–8 (noting difficulties in “defining the spatial . . . scope of the relevant markets”); SILVERY MINNOW EC. AN., *supra* note 187, at 41 (“Defining the ‘study area’ is an important feature of implementing a regional economic analysis. This area should be drawn broadly enough to include the outer limit of the geographic region through which a change in an activity is expected to reverberate, but not so broadly that impacts become so diffuse as to be indiscernible.”).

<sup>317</sup> PYGMY-OWL EC. AN., *supra* note 128, at 5–8. See also *GULF STURGEON EC. AN.*, *supra* note 128, at 39–41 (discussing secondary impacts in qualitative terms). A few recent

In sum, as illustrated in the preceding discussion at Part IV.B.2.a, the uncertainties associated with estimating direct economic impacts of critical habitat designation are themselves considerable. These uncertainties are in turn compounded by the additional uncertainties and difficulties posed by attempting to estimate secondary economic impacts. As a result, significant indeterminacy plagues the cost calculation.

*b. The Benefits Calculation*

A determination of the benefits of critical habitat designation rests on an evaluation of several elements: (1) the value of the species itself and therefore the benefit to be derived from continued preservation of the species; (2) the extent to which protection of particular habitat areas will actually benefit the species (i.e., increase its likelihood of survival or recovery); and (3) ancillary benefits that may result from the protection of habitat areas and ecosystems on which the species depends.<sup>318</sup> Even putting aside the incommensurability problems described above, each of these elements introduces substantial scientific uncertainty into any attempted calculation.<sup>319</sup>

*i. Quantifying the Value of Species Preservation*

The first element—the value of species preservation—derives from a range of disparate sources. A species may have current commercial value

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economic analyses have attempted some quantification of secondary impacts. For example, the economic analysis for the Rio Grande silvery minnow used IMPLAN, an input/output model developed by the U.S. Forest Service, to derive a quantitative estimate of the direct and secondary regional economic impacts of reducing irrigation water to the farming industry. See SILVERY MINNOW EC. AN., *supra* note 187, at 42. The economic analysis for forty-six plant species from the Island of Hawaii attempted to quantify some of the indirect costs, but called those numbers “speculative,” and acknowledged that other indirect costs remain “unquantifiable.” 46 Hawaiian Plant Species Critical Habitat Designation, 68 Fed. Reg. 39,624, 39,681 (July 2, 2003).

<sup>318</sup> Arguably, a full assessment of benefits should also attempt to estimate the increased economic activity that may be generated by a critical habitat designation. See, e.g., U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC IMPACT ANALYSIS OF PROPOSED HABITAT FOR THREATENED AND ENDANGERED PLANTS ON THE ISLAND OF HAWAII VI-97 to VI-99 (prepared by Research Solutions, L.L.C., Dec. 2002). Dollars spent on project modifications, conservation activities, and eco-tourism, for example, may generate regional economic activity and jobs. See *id.* Any such increase in economic activity, however, would probably represent simply a transfer of economic activity from some other sector of the state or national economy. See OAHU PLANTS EC. AN., *supra* note 185, at VI-92. Additionally, measuring dollars spent on eco-tourism might simply represent an alternative method of evaluating some of the species and ecosystem values noted above.

<sup>319</sup> Even Barton Thompson, who advocates applying the principles of welfare economics and cost-benefit analysis to the ESA, admits that “quantification raises almost intractable problems when applied to biodiversity.” Thompson, *supra* note 11, at 1157.

(like salmon), or it may hold the potential for future commercial value based on the possibility that scientific research may uncover medical or other practical uses previously unknown. Additionally, a species may have recreational, aesthetic, educational, symbolic, spiritual, or existence value.<sup>320</sup>

These categories of value vary enormously with respect to the ease with which they can be expressed in monetary terms. Where a species is itself a commodity that is traded in markets—salmon for example—a dollar figure can be attached to its commercial value with relative ease. To the extent that certain aspects of recreational value are also traded in markets (e.g., recreational equipment, tours, training services), economists can, with relatively little difficulty, derive a dollar figure representing these aspects of value. Such calculations, however, arguably leave out aspects of recreational value that are not bought and sold. For example, does the amount of money a bird watcher pays for binoculars and a field guide accurately reflect the full value she derives from that activity? Other categories of value may be amenable to expression in economic terms, but the extent of the value or the likelihood that it exists may be difficult to predict—such as the possibility that scientific research on a species will lead to the development of some beneficial drug.

Like the non-market aspects of recreational value, other categories of species and ecosystem value—esthetic, cultural, spiritual, existence value, and the value that stems from the pursuit of knowledge for knowledge's sake—are all intangible and not reflected in markets. Economists try to account for these through the contingent valuation method (willingness-to-pay studies), but this method is fraught with difficulties.<sup>321</sup> Since the questions posed are purely hypothetical, they do not realistically measure the choices people make within real world budget constraints.<sup>322</sup> Responses may be based on grossly inadequate information about the natural resource at issue or the consequences of its destruc-

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<sup>320</sup> See NAT'L RESEARCH COUNCIL, *supra* note 65, at 186–90 (discussing difficulty of assessing the value of species in economic terms). To the extent that a species plays a vital role in an ecosystem, part of the value of its continued existence includes the value of the continued healthy functioning of the ecosystem itself, but this issue is fraught with uncertainty. *Id.* at 181 (“The role of most species in ecosystems remains unknown.”); see also *infra* notes 327–331 and accompanying text.

<sup>321</sup> See, e.g., Stevens, et al., *supra* note 27, at 399 (“[W]e believe that the [contingent valuation method] may not provide a valid measure of existence value and we therefore argue that benefit-cost analysis should generally not be used to make decisions about the existence of wildlife.”); SUNSTEIN, *supra* note 296, at 143 (“[S]ome answers are implausibly high. Consider the fact that there is an asserted willingness to pay \$32 billion per year to save the whooping crane, an amount that is over ten times what was given to all non-profit environmental organizations in 1991.”); John Heyde, *Is Contingent Valuation Worth the Trouble?* 62 U. CHI. L. REV. 331, 343–44 (1995).

<sup>322</sup> See SUNSTEIN, *supra* note 296, at 142.

tion.<sup>323</sup> Additionally, the high protest rates often yielded by these surveys raise questions about their legitimacy.<sup>324</sup>

*ii. Quantifying the Increment of Species Preservation Value Provided by a Particular Area of Habitat*

Once the cost-benefit analyst has surmounted all the difficulties associated with quantifying the benefits of continued survival of the species itself, she confronts the equally difficult task of translating the protection of particular areas of habitat into some quantifiable increase in the species's chances of survival or recovery.<sup>325</sup> This task introduces, first, many of the same difficulties and uncertainties encountered on the cost side, such as attempting to predict the magnitude of development likely to occur and the project modifications likely to be imposed on such development if critical habitat is designated. Second, it introduces the difficulty

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<sup>323</sup> Studies often attempt to address this problem by providing background information to survey respondents. *See, e.g.*, John Loomis & Earl Ekstrand, *Economic Benefits of Critical Habitat for the Mexican Spotted Owl: A Scope Test Using a Multiple-Bounded Contingent Valuation Survey*, 22 J. AGRIC. & RES. ECON. 356 (1997). Undoubtedly, such background information can always be criticized as inadequate. Indeed, in many instances, relevant information may be unknown even to scientists. *See* James Salzman, *Valuing Ecosystem Services*, 24 ECOL. L. Q. 887, 895 (1997) (noting that "willingness to pay studies pose particularly intractable problems in attempting to measure ecosystem values, since it assumes that those polled have adequate knowledge of the services that ecosystems provide. Since ecologists themselves are just beginning to understand this, it is specious to assume that survey respondents would have such knowledge."). *See also* Proposed Discussion of Ecosystem Valuations, 62 Fed. Reg. 10,853 (Mar. 10, 1997) (EPA announcing that the Valuation Subcommittee of the Science Advisory Board will meet to continue its hearings "to propose a new framework for assessing the value of ecosystems to humans, including ecological services and environmentally mediated health and quality of life values").

<sup>324</sup> *See* Stevens et al., *supra* note 27, at 397 (reporting that majority of respondents refused to pay for preservation of bald eagles and wild turkeys despite stating that these species were important to them, either protesting that for ethical reasons wildlife should not be measured in monetary terms or protesting the payment vehicle proposed in the survey); ANDERSON, *supra* note 298, at 209 (citing example of willingness to pay study in which "more than half the respondents rejected the terms of the question outright or demanded infinite compensation"); SUNSTEIN, *supra* note 296, at 835 n.213 (willingness to pay studies "frequently experience protest rates of fifty percent or more").

<sup>325</sup> *See* VERNAL POOL SPECIES EC. AN., *supra* note 194, at 127-28 (discussing difficulty of assessing benefits of critical habitat designation on a unit-by-unit basis); Thompson, *supra* note 11, at 1157-58:

Conservation biology is still in its infancy. We often do not know, nor could we learn through a modicum of research, the exact role that a particular species plays in an ecosystem or what medical, industrial, or ecological value might be lost if the species goes extinct. We also typically have only a vague notion of how any particular human activity, like the development of a given tract of land, will affect the viability of particular endangered species.

of trying to translate the preservation of habitat accomplished by such project modifications into some measurable benefit to the species.<sup>326</sup>

These sources of uncertainty are exacerbated by the particular stochasticity that arises from this inquiry. On the one hand, it is conceivable that a single project modification caused by a critical habitat designation could provide the last increment of protection needed to make the difference between survival and extinction. In such an instance, the entire benefit derived from the survival of the species would be attributable to the critical habitat designation. On the other hand, the project modifications attributable to the designation might provide little or no incremental increase in the species's likelihood of survival. In such a case, the benefits would be close to zero. This difficulty suggests that attaching any single number to the benefits of critical habitat designation is impossible. Indeed, even assigning a range appears fruitless, since the range would be so broad as to be virtually meaningless, extending from a low near zero to a high reflecting the full benefit associated with saving the species from extinction.

*iii. Quantifying the Ancillary Benefits of Habitat and Ecosystem Protection*

Finally, aside from the benefits flowing from protection of the species itself, there may be ancillary benefits that flow directly from protecting the habitat area and ecosystem on which the species depends. These include the recreational, aesthetic, and other values of open space, as well as the myriad benefits we derive from healthy ecosystem functioning. These values go well beyond the price of commodities we extract from ecosystems, such as timber or fresh water. Ecosystems provide innumerable services that are vital to life on the planet, including our own. They assimilate waste, recycle nutrients, purify water, control water flow, prevent erosion, and regulate the climate. The processes by which ecosystems perform these functions are extraordinarily complex, however. Any attempt to place a dollar figure on these services is problematic, at best. Although a few recent attempts have been made to broadly estimate the dollar value of ecosystem services,<sup>327</sup> these estimates are uncertain

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<sup>326</sup> The task of translating preservation of particular areas of habitat into some measurable benefit for the species, in turn, introduces the profound uncertainties that surround efforts to explain and predict the functioning of ecosystems. See *infra* notes 327–331 and accompanying text.

<sup>327</sup> A widely cited study published in the journal *Nature* in 1997 estimated the aggregate value of global ecosystem services at between \$16 trillion and \$54 trillion per year. See Robert Costanza et al., *The Value of the World's Ecosystem Services and Natural Capital*, 387 *NATURE* 253 (1997). This is roughly equal to, or possibly triple, the global GNP, which is estimated at \$18 trillion. See Salzman, *supra* note 323, at 891.

The recent economic analysis for Oahu Plants cited a 1999 study by economists at the University of Hawaii that estimated the stream of ecosystem services provided by Oahu's

and imprecise. Any attempt to produce a similar estimate for some particular area of critical habitat would undoubtedly be subject to at least as much, if not more, skepticism and dispute.<sup>328</sup> Indeed, few, if any, efforts to estimate the dollar value of ecosystem services at the local level have ever been made.<sup>329</sup>

Even assuming an accurate scientific understanding of the benefits that some particular ecosystem process provides, an attempt to predict the impact that any particular disturbance may cause on ecosystem functioning introduces yet another layer of profound uncertainty into the analysis.<sup>330</sup> The science of ecology is far from being able to provide detailed and accurate descriptions and predictions of ecosystem functioning. Indeed, ecologists are in some sense even further from that goal than they were (or perceived themselves to be) three decades ago. During the 1960s and 1970s, the science of ecology held out the promise that mathematical models would one day describe ecosystem functioning with Newtonian precision. In recent decades, however, it has become increasingly clear that ecosystems are mind-numbingly complex and chaotic.<sup>331</sup> Because ecosystem functioning is profoundly complex, predicting how any particular perturbation will affect an ecosystem may often be impossible.

Even assuming an ecosystem can be meaningfully valued, attaching a value specifically to the designation of a particular area as critical habitat requires still further analytical steps, each of which introduces additional layers of uncertainty into the calculation. First, the analyst must predict the level of development likely to occur in the absence of critical habitat designation. Second, she must predict the extent to which that development would be stopped or mitigated by a critical habitat designation. Third, she must translate the amount of development avoided or mitigated into an increment of ecosystem degradation that would be prevented by the designation. Fourth, she must determine the extent to

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Koolau Mountains to be worth \$7.4 to \$14 billion. The proposed critical habitat covered nearly all of the mountain range. The analysis accordingly concluded that "even a very small percentage improvement to the ecosystem services can translate into large economic benefits." OAHU PLANTS EC. AN., *supra* note 185, VI-87 to VI-89 (Dec. 2002).

<sup>328</sup> See Salzman, *supra* note 323, at 897 ("The combination of methodological difficulty, inherent complexity, and lack of data makes placing absolute dollar figures on local ecosystem services unfeasible in many cases.").

<sup>329</sup> See *id.* at 892 ("[E]cosystem services are rarely, if ever, considered in current agency cost-benefit analyses.").

<sup>330</sup> See *id.* ("What is the extent of degradation to these services at various points along a continuum of impacts? Given the complexity of ecosystem services, the responses are almost certainly nonlinear.").

<sup>331</sup> See DANIEL B. BOTKIN, DISCORDANT HARMONIES: A NEW ECOLOGY FOR THE TWENTY-FIRST CENTURY 9 (1990); A. Dan Tarlock, *The Nonequilibrium Paradigm in Ecology and the Partial Unraveling of Environmental Law*, 27 LOY. L.A. L. REV. 1121, 1129 (1994).

which that increment of ecosystem degradation would result in losses of the particular services the ecosystem has been determined to provide.<sup>332</sup>

Thus, the sources of uncertainty that blur the boundaries of any attempt to quantify the benefits of species protection are legion.<sup>333</sup> These multiple and compound sources of uncertainty are likely, in many instances, to produce a margin of error so large that it precludes any meaningful comparison of costs and benefits.<sup>334</sup>

### 3. *Corruption of the Democratic Process*

Since any attempt to evaluate the benefits of species preservation confronts multiple layers of scientific uncertainty, it requires the decision-maker to make controversial value choices.<sup>335</sup> By expressing the outcome of this decision-making process in numeric terms, however, cost-benefit analysis masks underlying value choices and imbues what are inevitably highly uncertain and contingent conclusions with a false patina of scientific accuracy. Even if the final number is accompanied by a detailed explanation of the assumptions employed to derive it, the number itself is likely to overshadow all efforts to explain or qualify it.<sup>336</sup> Nor does it solve the problem to express numbers in ranges intended to reflect some level of uncertainty. Numbers carry with them an aura of scientific authority, which in this context is dangerously misleading and disempowering to policy makers and the public.<sup>337</sup>

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<sup>332</sup> See Salzman, *supra* note 323, at 896 (“[I]n most cases, our scientific knowledge is inadequate to predict with any certainty how specific local actions . . . will impact the local ecosystem services themselves.” This is, in part, because “[a]nalysis of how ecosystems provide services has proceeded slowly because ecosystem level experiments are difficult, costly and lengthy.”). See also Harold Mooney & Paul Ehrlich, *Ecosystem Services: A Fragmentary History*, in *NATURE’S SERVICES* 15–16 (Gretchen C. Daily ed., 1997).

<sup>333</sup> Even some proponents of cost-benefit analysis acknowledge that in many instances it may simply fail to provide an answer because “there is simply too much uncertainty.” Kenneth Arrow, et al., *Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?*, 272 *SCIENCE* 221, 221 (1996). See also Thompson, *supra* note 11, at 1157 (“The unfortunate truth is that extreme uncertainty, both biologic and economic, clouds the valuation of most species.”).

<sup>334</sup> If, for example, the margin of uncertainty associated with the estimate is large enough that the cost estimate falls somewhere in between its upper and lower bounds, cost-benefit analysis is simply indeterminate. In a recent examination of EPA’s cost-benefit analysis of arsenic in drinking water, Cass Sunstein found that precisely this kind of indeterminacy plagued the analysis. See Sunstein, *supra* note 227.

<sup>335</sup> *Id.* (acknowledging the numerous policy choices inherent in the assumptions that underlie cost-benefit analysis). See also Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 *COLUM. L. REV.* 1613, 1618–25 (1995) (arguing that policy choices often underlie the ostensibly scientific determinations upon which regulatory decisions are based).

<sup>336</sup> See Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost Benefit Analysis of Environmental Protection*, 150 *U. PA. L. REV.* 1553, 1579–80 (2002).

<sup>337</sup> See Heinzerling, *supra* note 4, at 2064–65; see also *American Fed’n of Labor and Congress of Indust. Org. v. Marshall*, 617 F.2d 636, 665 (D.C. Cir. 1979) (“Cost-benefit analysis require[s] the expression of costs, benefits and performance in often arbitrary,

Indeed, this aura of scientific accuracy and objectivity is in large part what gives cost-benefit analysis its appeal. By reducing all relevant considerations to numeric terms, it purports to be scientific and therefore objective and free of value judgments. By shifting the decision-making process from a debate about values, in which everyone feels qualified to participate, to a scientific calculus, which only certain highly trained experts can authoritatively critique, cost-benefit analysis takes control away from the citizenry and places it in the hands of an elite corps of expert economists (and those who can afford to hire them).<sup>338</sup>

Moreover, because of the multiple layers of scientific uncertainty described above, cost-benefit analysis of critical habitat designation is endlessly manipulable. That is to say, for any claim as to the proper valuation of the costs and benefits of a particular project, another economist can make a credible argument as to why the determination should be different. In this way, cost-benefit analysis sets the stage for a contest over which side can hire more or better experts, rather than which side has the better argument.<sup>339</sup> Indeed, even the highly trained and educated officials at FWS do not feel qualified to perform the relatively non-rigorous economic analyses currently being performed on critical habitat designations. They instead contract the task out to private consulting firms with teams of Ph.D economists. Accordingly, any citizen or industry group hoping to credibly challenge the findings of an economic analysis must hire their own expert. This problem will only worsen as FWS is pushed to prepare more detailed and quantified analyses.

#### 4. Formal Economic Cost-Benefit Analysis Costs Too Much

Perhaps a more prosaic but no less compelling objection to formal economic cost-benefit analysis is its substantial cost. The research and analysis necessary to quantify the costs and benefits of a government action come at a price, and it is not cheap. Indeed, it seems apparent that, from the outset, much of FWS's resistance to full implementation of the cost-benefit test for critical habitat designation has come from the agency's

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measurable terms. They may hide assumptions and qualifications in the seeming objectivity of numerical estimates.”).

<sup>338</sup> See Sagoff, *supra* note 35, at 1415 (arguing that cost-benefit analysis leads to technocracy, makes “useless the institutions of democratic government,” and localizes conflict, “defin[ing] a framework for conflict that keeps the public *qua* public and citizen *qua* citizen out”); ANDERSON, *supra* note 298, at 211.

<sup>339</sup> See Sunstein, *supra* note 24, at 154 (“If literate in some basic science and economics, an adroit lawyer, on either side, might mount apparently reasonable challenges to *any* EPA decision [based on the agency’s cost-benefit analysis of arsenic in drinking water]”) (emphasis in original); Jason Johnston, *A Game Theoretic Analysis of Alternative Institutions for Regulatory Cost-Benefit Analysis*, 150 U. PENN L. REV. 1343, 1401 (2002) (“Under a cost-benefit statute . . . regulatory targets ([e.g.] environmentalist cost-bearers) can cause virtually interminable regulatory delay merely by contesting the agency’s own cost-benefit calculation.”).

concern about the inordinate costs entailed. For example, in the Federal Register notice designating critical habitat for the southwestern willow flycatcher, FWS decried the high costs incurred by the agency in preparing economic analyses: “In a recent declaration filed in a Federal District Court, the Service’s assistant director estimated that economic analyses alone for the designation of critical habitat for the marbled murrelet . . . and Mexican spotted owl cost in excess of \$100,000 each.”<sup>340</sup> And those economic analyses, both prepared before the *Cattle Growers* decision, were relatively simple. The Mexican spotted owl analysis, for example, was only sixty-seven pages long<sup>341</sup> and devoted just two pages to a vague and qualitative discussion of benefits.<sup>342</sup> Any economic analysis that makes any meaningful attempt to quantify the benefits of critical habitat designation will undoubtedly involve costs orders of magnitude higher than those previously incurred by FWS.

Formal economic cost-benefit analysis also imposes significant costs in the form of delay. First, the additional resource expenditure initially required to compile the extensive and complicated data necessary to attempt to quantify the costs and benefits of critical habitat designation obviously translates into time. Second, formal economic cost-benefit analysis invites more extensive and more complicated challenges. Each of the many layers of scientific uncertainty identified above provides a foothold for the losing constituency to contest the agency’s determination.<sup>343</sup> The time required to resolve such complex and highly technical disputes is significant.

Delay, in turn, imposes additional biological and economic costs. Delaying implementation of the protections afforded by critical habitat designation increases a species’s chances of extinction. Delay also imposes economic costs on landowners and developers by creating uncertainty about the level of regulation to which a piece of land may be subject, thereby inhibiting market transactions.

To the extent the costs are high and the results indeterminate, formal economic cost-benefit analysis seems like a bad idea even by its own terms. In other words, cost-benefit analysis itself fails a cost-benefit test.<sup>344</sup>

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<sup>340</sup> Southwestern Willow Flycatcher Critical Habitat Designation, 60 Fed. Reg. 38,132 (July 22, 1997). See also Critical Habitat Clarifications, 64 Fed. Reg. 31,871, 31,873 (proposed June 14, 1999) (“Economic analysis done for critical habitat designation can be expensive. In the past, total costs for such analyses for critical habitat designations have cost as much as \$500,000.”); see also 46 Hawaiian Plant Species Critical Habitat Designation, 68 Fed. Reg. 39,624 (July 2, 2003) (complaining about the high cost of critical habitat designations, including the costs of economic analyses).

<sup>341</sup> Some recent economic analyses have been twice that long. See, e.g., KANGAROO RAT EC. AN., *supra* note 158; VERNAL POOLS EC. AN., *supra* note 194.

<sup>342</sup> U.S. FISH & WILDLIFE SERV., DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE MEXICAN SPOTTED OWL, 49–51 (*prepared by* Industrial Economics, Inc., Oct. 2000).

<sup>343</sup> See Sunstein, *supra* note 227, at 2290.

<sup>344</sup> Even staunch proponents of formal economic cost-benefit analysis acknowledge

For an agency as notoriously underfunded as FWS with so many of its clearly mandated tasks going undone,<sup>345</sup> any argument for a more resource-intensive procedure faces significant hurdles.

*D. Recommendations for Future Implementation of the Economic Analysis Requirement*

Economic analysis of critical habitat designations raises the same concerns that have prompted Congress to adopt short-cut standards in so many other instances. Congress has identified an interest of compelling public importance that it wishes to protect, and yet a precise calculation of the threatened harm would be at best extraordinarily time-consuming and expensive and at worst indeterminate, if not conceptually illogical. This is a situation, like so many others that Congress has identified, in which insisting on regulatory perfection will result instead in agency paralysis. Indeed, formal economic cost-benefit analysis in this context offers only the illusion of regulatory perfection. In practice, cost-benefit analysis flattens our most deeply held emotions, beliefs, and values—our awe at the profundity of extinction, our reverence for life, and our wonder in the face of the magnificence of biodiversity—into the monochromatic dull gray of the monetary metric. It produces hopelessly indeterminate results susceptible to easy challenge by anyone with the money to hire a Ph.D economist, and it corrupts the democratic process by giving tentative and uncertain predictions a patina of scientific accuracy and by transferring power from the public to an elite group of economists. And for all of this regulatory imperfection, the price tag is outrageously high, draining precious resources from substantive programs engaged in the real business of saving species.

A shortcut approach to the economic analysis of critical habitat designations is far preferable. Under such an approach, FWS would simply describe the likely costs and benefits of designation in qualitative terms

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that it is appropriate only where the potential costs of the action at issue are large enough to warrant the costs of the procedure itself. Thus, Executive Order 12,866 limits its cost-benefit mandate to major regulations—those costing at least \$100 million annually. *See* Cost-Benefit Analysis, 58 Fed. Reg. 51,735 (Sept. 30, 1993). Cass Sunstein suggests a threshold of \$50 million, *see* SUNSTEIN, *supra* note 11, and the Risk Assessment and Cost-Benefit Act, which Congress came close to passing in 1995, would have required cost-benefit analysis only for regulations with annual costs of \$25 million or more. *See supra* note 21. Thus, even staunch proponents of cost-benefit analysis would presumably agree that it is not appropriate for critical habitat designations when the costs of the designation fall below some such threshold. This, of course, assumes that cost estimates themselves are non-controversial, a problematic assumption, particularly given the extent to which FWS's reading of the jeopardy and adverse modification standards in identical terms has undoubtedly put downward pressure on its cost estimates. *See supra* notes 109–128 and accompanying text.

<sup>345</sup> *See* Jennifer Lee, *Money Gone, U.S. Suspends Designations of Habitats*, N.Y. TIMES, May 29, 2003, at A18 (describing FWS's decision to suspend critical habitat designations for the remaining months of the fiscal year due to lack of funds).

and then base its discretionary exclusion decision on an apples-to-oranges comparison. At first glance, it might seem sensible to express the costs, which are primarily economic, in monetary terms, even if the benefits, which are primarily biological, are expressed qualitatively. The costs of critical habitat designation are, after all, virtually all economic and therefore theoretically expressible in dollars. There are two problems with such an approach, however. First, just because costs are theoretically quantifiable, does not mean we have the empirical information necessary to do so. As discussed above, secondary costs pose particularly intractable problems. Second, an apples-to-oranges comparison that expresses costs in terms of dollars and benefits in qualitative terms will inevitably privilege costs over benefits and thereby skew public debate.<sup>346</sup>

Numbers wield substantial power and authority.<sup>347</sup> Dollar figures are much more likely to garner public attention than vague complicated descriptions of likely consequences.<sup>348</sup> Dollar figures also convey a false impression of scientific accuracy and reliability. Thus, quantifying the cost and not the benefit side of the equation poses a risk of focusing public attention on the costs of critical habitat designation while rendering the benefits relatively invisible.<sup>349</sup> Similarly, if costs are expressed in part quantitative, and part qualitative terms,<sup>350</sup> the quantitative estimate is likely to overshadow the qualitative estimate.<sup>351</sup>

Accordingly, the economic analysis of critical habitat designations should employ a “short-cut” cost-benefit analysis that simply describes the likely costs and benefits in qualitative terms. Such an analysis will allow FWS to identify the kinds of extremely unbalanced situations Congress was concerned about, where costs are grossly disproportionate to

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<sup>346</sup> See Ackerman & Heinzerling, *supra* note 336, at 1579–80.

<sup>347</sup> See Heinzerling, *supra* note 4, at 2064–65.

<sup>348</sup> See Ackerman & Heinzerling, *supra* note 336, at 1579–80 (citing example of EPA’s cost-benefit analysis of arsenic in drinking water which expressed benefits in quantitative and nonquantitative terms: “Subsequent public discussion . . . however, inevitably referred only to the EPA’s numerical analysis and forgot about the cases of avoided illness that could not be quantified”).

<sup>349</sup> While the economic analyses currently being generated by FWS include lengthy narrative descriptions of the costs considered and the methods used to generate monetary estimates, including explanations of simplifying assumptions, FWS’s standard practice is to state in the Federal Register notice of the final designation only the final dollar estimate, unadorned by explanations or caveats. This Federal Register notice is the only place where FWS states a conclusion as to the balance of costs and benefits and as to whether exclusion is warranted. It is also likely to be the only explanation of the economic analysis that most people see. The economic analyses themselves are not published in the Federal Register; they must be obtained separately by contacting the local FWS office.

<sup>350</sup> See, e.g., GULF STURGEON EC. AN., *supra* note 128, at 39–41.

<sup>351</sup> This may also lead to an exaggeration of costs, since the secondary costs, which would be expressed qualitatively, are likely to include offsetting effects which would lessen the total cost figure (e.g., increased revenues enjoyed by recreational outfitters as a result of increased stream flows to protect an endangered fish species).

benefits, without squandering valuable public resources in a futile search for the holy grail of scientific accuracy in cost-benefit analysis.<sup>352</sup>

## VI. CONCLUSION

Even Robert Frank, a staunch proponent of cost-benefit analysis, has acknowledged that it may turn out to be “correct in principle yet best avoided in practice.”<sup>353</sup> Certainly, any thorough evaluation of cost-benefit analysis as a decision-making tool must move beyond abstract speculation to a concrete examination of how it actually plays out in particular contexts. In this instance, that concrete examination demonstrates that formal economic cost-benefit analysis is not “for everyone”<sup>354</sup>—at least not for FWS officials deciding what areas to include in critical habitat designations.

This practical perspective is not new for American environmental law. Indeed, it is just such an appreciation of the practical constraints facing regulators (limited time, money and knowledge, for example) that has led Congress so often in environmental law-making to choose short-cut standards over cost-benefit analysis’s (perhaps illusory) promise of regulatory perfection. Ironically, it is a kind of back-of-the-envelope cost-benefit analysis of cost-benefit analysis itself that has led Congress to adopt short-cut standards—a determination that the regulatory benefits to be achieved by engaging in the time-consuming, expensive (and perhaps ultimately indeterminate) process of formal economic cost-benefit analysis are simply not worth the costs.

These same concerns in large part seem to have been driving FWS’s resistance to implementing the economic analysis requirement for critical habitat designation since its enactment in 1978. And perhaps we should

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<sup>352</sup> Any attempt by FWS to take a short-cut approach to economic analysis of critical habitat designations will undoubtedly be challenged in court. Under the deferential arbitrary and capricious standard, an argument that the agency’s weighing of qualitative costs and benefits should have come out differently is unlikely to persuade a court to overturn the agency’s decision. Accordingly, the losing constituency in any controversial critical habitat designation—whether environmentalists upset by a decision to exclude critical habitat on economic grounds or developers upset with a decision not to exclude—will likely argue that a “more accurate” quantitative evaluation of costs and benefits was feasible and that such an analysis would have resulted in a different decision. The agency will have *Chevron* deference and the clearly discretionary nature of the statutory directive on its side. Nonetheless, under the “cost-benefit default principles” that Cass Sunstein argues are already emerging in the federal courts, *see* Sunstein, *supra* note 3, at 1654, a short-cut approach by FWS might be set aside. For all of the reasons set forth above, such a result would be contrary to congressional intent under the ESA as well as bad public policy. Indeed, it is my hope that this case study will give pause to those who advocate a wholesale adoption of cost-benefit default principles by the courts.

<sup>353</sup> Robert H. Frank, *Why is Cost-Benefit Analysis So Controversial?* 29 J. LEG. STUDIES 913, 930 (2000). I have also suggested that formal economic cost-benefit analysis may be wrong “in principle” because of the problem of incommensurability, at least in the context of endangered species. *See supra* notes 297–310 and accompanying text.

<sup>354</sup> SUNSTEIN, *supra* note 11, at 20.

take heed of how those on the front lines view the problem. Unfortunately, rather than taking a principled approach to the issue that might have survived judicial scrutiny, FWS resisted implementation on a series of grounds that were ultimately indefensible. Predictably, that approach backfired, first in a series of court victories by environmental groups forcing FWS to begin issuing long-overdue critical habitat designations, and more recently in a successful challenge from industry resulting in the Tenth Circuit's invalidation of FWS's approach to economic analyses in the *Cattle Growers* decision.

*Cattle Growers* has made FWS's strategy of avoidance no longer tenable, although it has done so in a way that has needlessly complicated matters. While the Tenth Circuit was legitimately concerned that FWS was not effectively implementing Congress's directive, the problem lay not with FWS's baseline approach, but rather with FWS's position that, both empirically and legally, critical habitat designation has no impact over and above listing. Accordingly, by invalidating the baseline approach, the *Cattle Growers* court indicted the wrong culprit and added needless complication and expense to the economic analysis process.

FWS should abandon its efforts to comply with the *Cattle Growers* decision through the cumbersome and misleading mechanism of the "second baseline." Instead, in accordance with the Fifth Circuit's *Sierra Club*<sup>355</sup> decision, the agency should revise its regulatory definition of "adverse modification" to distinguish it from the concept of "jeopardy." Under this new regulatory regime in which critical habitat *does* make a difference, economic analyses done using the baseline approach would no longer be "meaningless,"<sup>356</sup> and FWS would therefore be able to take the position that *Cattle Growers* was no longer applicable. This would allow the agency to return to its original baseline approach, which is the only logically coherent way to conduct the economic analysis called for in Section 4(b)(2).

In addition to forcing FWS to adopt the cumbersome and illogical process of adding a second baseline to its analyses, *Cattle Growers* has also triggered a trend toward increasing quantification, making the economic analyses of critical habitat designations look more and more like the kind of formal economic cost-benefit analysis that has been gaining credence in recent decades. Although FWS is likely to feel increasing pressure to move in this direction from both environmentalists and industry, it should resist this pressure. Application of formal cost-benefit analysis to critical habitat designations is inconsistent with the congressional intent behind the 1978 amendments to the ESA and, perhaps more importantly, is simply a bad idea. It flattens our most profound emotions, beliefs, and values into the dull gray of dollars and cents; it produces hopelessly indeterminate results; it clouds transparency and undermines

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<sup>355</sup> *Sierra Club v. U.S. Fish & Wildlife Serv.*, 245 F.3d 434 (5th Cir. 2001).

<sup>356</sup> *Cattle Growers*, 248 F.3d at 1285.

public participation by giving controversial and uncertain predictions a false patina of scientific accuracy and objectivity; and it delivers all this regulatory imperfection for a price that is outrageously high, draining needed resources from the real business of saving species. FWS should take a firm stand against this result by adopting a short-cut approach to the economic analysis of critical habitat designations that avoids quantification and simply describes the costs and benefits of designation in qualitative terms.