

TARNISHED GOLD: THE ENDANGERED SPECIES ACT AT 50

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Abstract

The ESA is arguably the most powerful and stringent federal environmental law on the books. Yet for all of the Act's force and ambition, it is unclear how much the law has done much to achieve its central purpose: the conservation of endangered species. The law has been slow to recover listed species and has fostered conflict over land use and scientific determinations that frustrate cooperative conservation efforts. The Article aims to take stock of the ESA's success and failures during its first fifty years, particularly with regard the conservation of species habitat on private land. While the Act authorizes powerful regulatory tools for species conservation, there are serious questions as to whether such tools are the most effective means of conserving species and the habitats on which they rely. Given that most species rely upon private land for their survival, the Act's ability to foster private land conservation is will affect the law's overall success

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INTRODUCTION

In December 1973, President Richard Nixon signed the Endangered Species Act (ESA) into law.¹ The ESA represented an “important step toward protecting a heritage which we hold in trust to countless future generations,” Nixon proclaimed.² “Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed[,]” he explained, adding that the ESA would “provide[] the Federal Government with needed authority to protect an irreplaceable part of our national heritage—threatened wildlife.”³

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¹ Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884 (1973).

² Richard Nixon, *Statement on Signing the Endangered Species Act of 1973*, AM. PRESIDENCY PROJECT (Dec. 28, 1973), <https://www.presidency.ucsb.edu/documents/statement-signing-the-endangered-species-act-1973>.

³ *Id.*

President Nixon was not alone in praising the new enactment. The law passed in Congress “virtually without opposition,”⁴ and was broadly supported by conservationists.⁵ Few anticipated, however, how broadly the law would affect both governmental and private activities.⁶ Nor did many anticipate that the law would be “a lightning rod for litigation” and “source of ongoing legal debate.”⁷

The ESA is arguably the most powerful and stringent federal environmental law on the books.⁸ The U.S. Supreme Court has called it “the most comprehensive legislation for the

⁴ Holly Doremus, *The Story of TVA v. Hill: A Narrow Escape for a Broad New Law*, in ENVIRONMENTAL LAW STORIES 109, 113 (Richard J. Lazarus & Oliver A. Houck eds., 2005); see also JAMES SALZMAN & BARTON H. THOMPSON, JR., ENVIRONMENTAL LAW AND POLICY 294 (5th ed. 2019) (“No Senator and only four members of the House voted against the ESA.”); Shannon Petersen, *Congress and Charismatic Megafauna: A Legislative History of the Endangered Species Act*, 29 ENV’T L. 463, 475 (1999); (noting legislative support for the new law was “widespread and enthusiastic.”).

⁵ As the *Washington Post* noted, legislative action to increase the protection of endangered species was due to “the energetic parts of the wildlife and conservation movement.” *Protecting Endangered Species* (editorial), WASH. POST., Jun. 26, 1973, at A22; see also Holly Doremus, *The Endangered Species Act: Static Law Meets Dynamic World*, 32 WASH. U. J.L. & POL’Y 175 (2010) (“Legislators appear to have regarded it as an opportunity to deliver ringing rhetoric that would please the environmental movement without facing any immediate political costs.”). Interestingly enough, passage of the ESA received relatively little attention in major newspapers or scientific publications. *Id.* at 180.

⁶ See Donald J. Barry & Robert Wallace, *Foreword* to ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, at xiii (Donald C. Baur & Ya-Wei Li eds., 3rd ed. 2021) (“It would be neither inaccurate nor unkind to say that when Congress passed the ESA in 1973, it had only a vague sense (if it had one at all) of the likely legal consequences of the language it placed in the new law.”); Doremus, *supra* note 4, at 113 (“Although the statute’s words seem clear, it is widely agreed that most legislators were not aware of the full scope of the ESA when they voted for it. Discussion had centered on appealing species such as grizzly bears, bald eagles, blue whales, and the like.”). As one of the Nixon Administration’s Interior Department officials would later comment, “there were probably not more than four of us who understood its ramifications.” See CHARLES C. MANN & MARK L. PLUMMER, NOAH’S CHOICE: THE FUTURE OF ENDANGERED SPECIES 160 (1995).

⁷ Donald Baur & Ya-Wei Li, *Overview* to ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, *supra* note 6, at 1; see also Michael J. Bean, *The Endangered Species Act: Science, Policy, and Politics*, 1162 ANNALS N.Y. ACAD. SCI. 369, 369 (2009) (the ESA is “one of the most contentious of our federal environmental laws”); Robert L. Fischman, Vicky J. Meretsky & Matthew P. Castelli, *Collaborative Governance under the Endangered Species Act: An Empirical Analysis of Protective Regulations*, 38 YALE J. REG. 976, 978 (2021) (“The Endangered Species Act (ESA) is both revered as a moral commitment to restraint and reviled as a pit bull, oblivious to the plight of landowners facing dramatic economic losses through no fault of their own.”).

⁸ See SALZMAN & THOMPSON, *supra* note 4, at 294–95 (“For all its failings, the ESA today is perhaps the most powerful natural resources law in the nation, or for that matter, in the world.”); see also Ike C. Sugg, *Caught in the Act: Evaluating the Endangered Species Act, Its Effects on Man and Prospects for Reform*, 24 CUMB. L. REV. 1, 2 (1993) (noting the ESA is “widely considered to be the most powerful environmental law in the nation”); Gardner M. Brown, Jr. & Jason F. Shogren, *Economics of the Endangered Species Act*, J. ECON. PERSP., Summer 1998, at 3,

preservation of endangered species by any nation.”⁹ Others have characterized it as a “pit bull.”¹⁰ Alone among major environmental laws, the ESA explicitly prioritizes the protection and conservation of non-human species and constrains the ability of government agencies to consider trade-offs.¹¹

For all of the ESA’s force and ambition, it is unclear how much the law has done to achieve its central purpose—the conservation of endangered species.¹² While it has likely prevented some extinctions, the law has been slow to recover listed species and has fostered conflict over land use and scientific determinations that frustrate cooperative conservation efforts.¹³ Regulatory interventions may be necessary to conserve imperiled species, but there is broad recognition that

3 (noting that the ESA is the “most comprehensive of all our environmental laws”); RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 73 (2004) (describing the ESA as “perhaps the most far-reaching” of the environmental laws enacted in the 1970s). *But see* Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion over Nature*, 17 N.Y.U. ENV’T L.J. 490, 506 (2008) (suggesting “the ESA may in reality be a paper tiger given the extent to which it is not enforced in many cases.”).

⁹ *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978); *see also* Ya-Wei Li, Joe Roman, David S. Wilcove, Timothy Male, & Holly Doremus, *Species Protection Will Take More Than Rule Reversal*, 370 *SCIENCE* 665, 665 (2020) (the ESA “is justly celebrated as perhaps the strongest model for endangered species protection worldwide”); Justin R. Pidot, *Contingent Delisting*, 91 U. COLO. L. REV. 649, 649 (2020) (The ESA “is among the strongest biodiversity protection laws anywhere in the world”).

¹⁰ *See* Timothy Egan, *Strongest U.S. Environment Law May Become Endangered Species*, N.Y. TIMES, May 26, 1992, at A-11 (noting characterization of law as “the pit bull of environmental laws . . . it’s short, compact and has a hell of a set of teeth.”); *see also* Steven P. Quarles, *The Pit Bull Goes to School*, ENV’T F., Sept./Oct. 1998, at 55, 55 (discussing the ESA’s “pit bull” characterization).

¹¹ *See* LAZARUS, *supra* note 8, at 73 (“[The ESA] did not seek to strike a balance between competing interests at all. It instead singled out the prevention of species extinction, both animal and plant, as an overriding federal policy objective.”); *see also* Pidot, *supra* note 9, at 649 (observing the ESA’s “animating principle is that we, as a society, should do whatever it takes to prevent the extinction of the plants and animals that share our planet”).

¹² *See* Mark W. Schwartz, *The Performance of the Endangered Species Act*, 39 ANN. REV. ECOLOGY EVOLUTION & SYSTEMATICS 280, 280 (2008) (“[T]he scientific question of whether the ESA works effectively to protect species remains open.”).

¹³ The incentives created by the ESA’s land-use regulations not only discourage private land conservation, but they also create pressures to manipulate or control scientific determinations related to endangered species. For a fuller discussion of this problem, *see, for example*, Jonathan H. Adler, *The Science Charade in Species Conservation*, 24 SUP. CT. ECON. REV. 109, 109 (2017).

the ESA’s “regulatory hammer isn’t enough.”¹⁴ Regulatory constraints on land use have not done much to encourage proactive or forward-looking conservation efforts.¹⁵ The conservation of habitat, particularly on private land, has been a significant challenge that is only likely to become more difficult as fiscal pressures constrain conservation funding and climate change modifies ecosystems.

This Article aims to take stock of the ESA’s success and failures during its first fifty years, particularly with regard to the conservation of species habitat on private land. While the ESA authorizes powerful regulatory tools for species conservation, there are serious questions as to whether such tools are the most effective means of conserving species and the habitats on which they rely. Given that most species rely upon private land for their survival,¹⁶ the ESA’s ability to foster private land conservation will affect the law’s overall success.

Part I provides a brief overview of the ESA’s structure and central regulatory provisions. Part II turns to the question of how successful the ESA has or has not been at conserving and recovering species since its enactment a half-century ago. Over this time period, there has been greater success at listing species and perhaps at staving off extinction than there has been at recovering and delisting them, raising legitimate questions about the ESA’s overall effectiveness.¹⁷

Part III focuses on the private land problem. Because privately owned habitat is essential for many species’ survival, the ESA’s ability to conserve privately owned habitat is key to the

¹⁴ Erik Stokstad, *What’s Wrong with the Endangered Species Act*, 309 SCIENCE 2150, 2152 (2005); see also Robert L. Fischman & J.B. Ruhl, *Drawing from Beyond the Life Sciences*, 382 SCIENCE 1348, 1349 (2023) (“Mere statutory prohibitions are not enough.”); Barton H. Thompson, Jr., *Managing the Working Landscape*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY: RENEWING THE CONSERVATION PROMISE 101, 125 (Dale D. Goble, J. Michael Scott, & Frank W. Davis, eds., 2005) (“[A] purely regulatory approach will never be able to maximize the value of the working landscape for biodiversity.”).

¹⁵ See *infra* Part III.

¹⁶ See *infra* notes 152-154 and accompanying text.

¹⁷ See *infra* Part II.

law’s overall effectiveness.¹⁸ Yet the ESA’s regulatory proscriptions, however well-intentioned, often work against private land conservation. By imposing significant costs and regulatory constraints on private landowners, the ESA discourages conservation and, in some cases, may even create perverse incentives for habitat destruction. While administrative reforms have helped soften the economic impacts in some cases,¹⁹ this underlying incentive structure remains a serious obstacle to greater species conservation.

Part IV explains why legislative action will be necessary if the ESA is to achieve its conservation promise. The ESA’s relatively rigid structure, combined with Congress’s reluctance to fund species recovery, has hampered its ability to encourage recovery. While some administrations have sought to encourage conservation through various administrative reforms, there are limits to what can be accomplished without legislative reform. With climate change expected to increase the threats to many species, Congressional action to reduce penalties on landowners and foster more flexible conservation strategies is particularly urgent.

I. THE ENDANGERED SPECIES ACT

The groundwork for the ESA was laid in the 1960s, as public demand for environmental protection surged and the federal government began to flex its regulatory muscles in environmental policy.²⁰ In 1966, Congress passed the Endangered Species Preservation Act, authorizing the Secretary of the Interior to establish a list of endangered and threatened species and purchase land

¹⁸ See *infra* notes 152-154 and accompanying text.

¹⁹ See *infra* notes 191-194 and accompanying text.

²⁰ See Petersen, *supra* note 4 at 477 (observing “the ESA arrived on the ‘peak of [the environmental] wave’”).

deemed important for conservation purposes.²¹ A law prohibiting the import of endangered species for most purposes followed shortly thereafter in 1969.²² Additional limits on trade in endangered species were established in the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), an international agreement to restrict trade in imperiled species and their products.²³

While these measures and other federal government actions, such as limitations on the pesticide dichlorodiphenyltrichloroethane, commonly known as DDT, helped conserve some species,²⁴ there was widespread recognition that these measures were inadequate.²⁵ Among other things, these laws did not even purport to cover plants or most invertebrate species.²⁶ These perceived deficiencies prompted Congress to enact the ESA in 1973.²⁷ As already noted, the law was enacted by a large margin with only token opposition in Congress. There was widespread agreement that the federal government should act to protect imperiled species, charismatic megafauna in particular.²⁸

²¹ Endangered Species Preservation Act, Pub. L. No. 89-669, 80 Stat. 926 (1966). Note that the first federal endangered species list was actually compiled two years earlier by the Bureau of Sports Fisheries and Wildlife (the precursor to the U.S. Fish & Wildlife Service). See Michael J. Bean, *Historical Background of the Endangered Species Act*, in ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, *supra* note 6, at 11, 14–15.

²² Endangered Species Conservation Act, Pub. L. No. 91-135, 83 Stat. 275 (1969).

²³ See Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1976, 27 U.S.T. 1087 (*amended* June 22, 1979, T.I.A.S. No. 11,079).

²⁴ See *infra* notes 90–92 and accompanying text.

²⁵ See MICHAEL J. BEAN & MELANIE J. ROWLAND, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 198 (3d ed. 1997) (noting “it was apparent that the task of conserving endangered wildlife in the United States would require a more comprehensive effort than the 1966 and 1969 Acts had established.”).

²⁶ See Bean, *supra* note 21, at 16.

²⁷ See BEAN & ROWLAND, *supra* note 25, at 198–99.

²⁸ See Doremus, *supra* note 4, at 113 (“Although the statute’s words seem clear, it is widely agreed that most legislators were not aware of the full scope of the ESA when they voted for it. Discussion had centered on appealing species such as grizzly bears, bald eagles, blue whales, and the like.”); see also Charles C. Mann & Mark L. Plummer, *The Butterfly Problem*, ATL. MONTHLY, Jan. 1992, at 42 (“They thought they were writing a law about saving bald eagles and elk- what I call the ‘charismatic megafauna,’ says Dennis Murphy, the director of the Center for Conservation Biology at Stanford. ‘Instead, they got a law protecting species[.]’”).

Enactment of the ESA in 1973 “radically changed” the federal government’s approach to species conservation, turning away from land acquisition and, instead, “imposing strict regulatory limits on actions affecting listed species.”²⁹ The new law built upon Congress’ prior enactments by incorporating the previously authorized list of imperiled species.³⁰ It also established new procedures for listing species³¹ and developing species recovery plans.³² But Congress also enacted powerful new regulatory measures designed to limit government and private actions that could imperil listed species.³³

The “cornerstone” of the ESA is the establishment of a list of “endangered” and “threatened” species.³⁴ The purpose of this list is to identify those species that are at-risk of extinction from a range of causes, both natural and human-caused.³⁵ But the list is not simply a source of information. It is also a trigger for administrative action. When a species is listed, this triggers a suite of legal obligations and prohibitions.³⁶ Upon listing, the Fish & Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are obligated to designate a critical

²⁹ See Doremus, *supra* note 4, at 113.

³⁰ The current list of endangered and threatened species includes over 100 species that were listed prior to the ESA’s enactment in 1973. See *U.S. Federal Endangered and Threatened Species by Calendar Year*, U.S. FISH & WILDLIFE SERVICE, <https://ecos.fws.gov/ecp/report/species-listings-by-year-totals> (last visited Jan. 19, 2024).

³¹ See 16 U.S.C. §1533 (b).

³² See *id.* §1533 (f).

³³ Of note, there was relatively little debate over the Act’s regulatory provisions, though concerns were raised about the potential for potential preemption. See Petersen, *supra* note 4, at 473–76.

³⁴ See J. B. Ruhl, *Regional Habitat Conservation Planning Under the Endangered Species Act: Pushing the Legal and Practical Limits of Species Protection*, 44 SW. L.J. 1393, 1396 (1991). Some in Congress characterized the listing process as the “keystone” of the ESA. See H.R. REP. NO. 97-567, at 10 (1982), as reprinted in 1982 U.S.C.C.A.N. 2807, 2810 (stating “the listing process under Section 4 is the keystone of the Endangered Species Act”).

³⁵ See 16 U.S.C. § 1533(a)(1) (2023) (identifying potential causes of threats to species that may justify listing).

³⁶ See Bean, *supra* note 7, at 372 (“Immediately upon being added to the threatened or endangered list, a species becomes subject to a wide array of formal protections.”).

habitat “to the maximum extent prudent and determinable”³⁷ and to “develop and implement plans . . . for the conservation and survival” of the species (“recovery plans”).³⁸ Listing a species also imposes requirements on federal agencies to consult with the FWS and the NMFS to ensure their actions do not imperil listed species³⁹ and prohibits actions, public and private, that could “take” an endangered species.⁴⁰

The ESA defines an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range”.⁴¹ A “threatened species,” by contrast, is “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”⁴² Factors the FWS must consider in determining whether a given species is endangered or threatened include present or threatened habitat loss, overutilization of the species, disease or predations, existing regulatory protections, and other human activities that could imperil the species.⁴³ Subspecies and distinct population segments may also be listed as “endangered” or “threatened” species.⁴⁴ At present, there are over 2,300 species on the endangered and threatened species list.⁴⁵

³⁷ 16 U.S.C. § 1533(a)(3) (2023). “Critical habitat” is in turn defined in *id.* § 1532(5).

³⁸ *Id.* § 1533(f).

³⁹ *See id.* § 1536.

⁴⁰ *Id.* § 1538.

⁴¹ *Id.* § 1532(6). The Act excludes from the definition of “endangered species” any “species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this chapter would present an overwhelming and overriding risk to man.” *Id.*

⁴² *Id.* § 1532(20).

⁴³ *Id.* § 1533(a)(1).

⁴⁴ The Act defines “species” as including “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.” *Id.* § 1532(16).

⁴⁵ *See infra* Part II.

The ESA’s stated purpose is to “conserve” those species listed as endangered or threatened.⁴⁶ As defined by the law, to “conserve” means “to use and 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.”⁴⁷ In other words, the express aim of the ESA is to recover all imperiled species to the point at which its survival no longer requires federal regulation.⁴⁸ This goal may not be realistic with regard to all listed species, particularly those that are conservation-reliant, in that they require predator control, habitat maintenance, or other human intervention.⁴⁹ Nonetheless, the express goal of conservation-as-recovery is what Congress enacted into law.

The two most important, and powerful, regulatory provisions of the ESA are Section 7 and Section 9. Under Section 7, federal agencies are required to consult with the FWS or the NMFS to

⁴⁶ The stated purposes of the Act are “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be *conserved* [and] to provide a program for the *conservation* of such endangered species and threatened species.” 16 U.S.C. §1531(b) (emphases added). The ESA further declares that it is “the policy of Congress that all Federal departments and agencies shall seek *to conserve* endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this chapter.” *Id.* §1531(c)(1) (emphasis added). Daniel M. Evans, Judy P. Che-Castaldo, Deborah Crouse, Frank W. Davis, Rebecca Epanchin-Niell, Curtis H. Flather, R. Kipp Frohlich, Dale D. Goble, Ya-Wei Li, Timothy D. Male, Lawrence L. Master, Matthew P. Moskwik, Maile C. Neel, Barry R. Noon, Camille Parmesan, Mark W. Schwartz, J. Michael Scott, & Byron K. Williams, *Species Recovery in the United States: Increasing the Effectiveness of the Endangered Species Act*, ISSUES IN ECOLOGY, Winter 2016, at 1, 3 (“Recovery of species that are endangered or threatened with extinction is a central goal of the ESA.”).

⁴⁷ 16 U.S.C. §1532(3).

⁴⁸ After a species is delisted, however, the federal agencies are required to monitor the species for “not less than five years.” *See id.* §1533(g).

⁴⁹ *See* J. Michael Scott, Dale D. Goble, John A. Wiens, David S. Wilcove, Michael Bean & Timothy Male, *Recovery of Imperiled Species Under the Endangered Species Act: The Need for a New Approach*, 3 FRONTIERS ECOLOGY & ENV’T 383, 384 (2005) (discussing “conservation reliant” species); *see also* William L. Andreen, *Separating Fact from Fiction in Evaluating the Endangered Species Act: Recognizing the Need for Ongoing Conservation Management and Regulation*, 56 IDAHO L. REV. 39, 39 (2020) (“[M]ost species will not be able to recover to the point at which they can survive in the wild, notwithstanding larger numbers or improved range, unless specific regulatory measures or conservation efforts are taken to protect the recovered population from the adverse impacts that imperiled them in the first instance.”). For these reasons, some have begun to discuss the potential use of genetic engineering to help with species conservation. *See* John A. Erwin, *Building Better Species: Assisted Evolution, Genetic Engineering, and the Endangered Species Act*, 108 CORNELL L. REV. 1117 (2023).

ensure that no action “authorized, funded, or carried out” by that agency will “jeopardize the continued existence of any endangered species or threatened species” or destroy critical habitat for such species.⁵⁰ This consultation requirement is intended to ensure that all federal agencies adequately account for the effects of their actions on listed species and to prevent agencies from taking, supporting, or authorizing actions that will imperil such species.

Section 7 has been interpreted to impose a stringent and rather inflexible obligation on federal agencies. In *Tennessee Valley Authority v. Hill*, the Supreme Court held that the ESA explicitly placed endangered species conservation above other social goals when in conflict.⁵¹ Specifically, the Court held that the consultation requirement of Section 7 “admits of no exception,” and prohibited completion of the Tellico Dam in Tennessee lest the dam’s construction and operation push a small, endangered fish, the Tennessee snail darter, over the brink of extinction.⁵² “The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost,” the Court explained.⁵³

Congress responded to *TVA v. Hill* with a set of amendments to impose greater procedures on the listing of new species, require consideration of economic effects during the designation of the critical habitat, as well as to authorize a special cabinet-level committee, subsequently known as the “God Squad,” to exempt important projects from the ESA’s prohibitions.⁵⁴ This latter provision was intended to permit completion of the Tellico Dam, although it did not work out that

⁵⁰ 16 U.S.C. §1536(a)(2). As a general rule, the FWS is responsible for terrestrial and freshwater species, and NMFS is responsible for marine species. For convenience, this Article often just refers to the FWS when both agencies could be referenced.

⁵¹ *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 172–173 (1978).

⁵² *Id.* at 173.

⁵³ *Id.* at 184.

⁵⁴ Endangered Species Act Amendments of 1978, Pub. L. No. 95-632, §§ 1, 2, 11, 92 Stat. 3751, 3753, 3764, 3766 (1978).

way.⁵⁵ Congress had to come back again and explicitly approve the Dam’s construction.⁵⁶ This is one of the few projects expressly exempted from the ESA’s regulatory requirements.⁵⁷

Section 9 prohibits anyone to engage in the unpermitted “taking” of any “endangered species of fish or wildlife.”⁵⁸ Violators are subject to civil and criminal penalties.⁵⁹ As defined in the ESA, “taking” an endangered species not only includes killing, wounding, or capturing an endangered species, but also otherwise harming the species, including by destroying or adversely modifying its habitat.⁶⁰ Section 10 authorizes the Secretary (in practice, the FWS or NMFS) to authorize exemptions to Section 9.⁶¹ As originally enacted, this exemption was limited to permitting activities necessary for scientific research or the propagation of listed species, but was subsequently amended to authorize the granting of permits for activities that may cause the “incidental” taking of listed species in conjunction with a government-approved “conservation

⁵⁵ See Zygmunt J.B. Plater, *Law and the Fourth Estate: Endangered Nature, the Press, and the Dicey Game of Democratic Governance*, 32 ENV’T. L. 1, 16 (2002) (discussing how the “God Squad” concluded that the Tellico Dam project “did not make economic sense”).

⁵⁶ See Doremus, *supra* note 4, at 133–34 (discussing how Tennessee Senator Howard Baker pushed to have the Tellico Dam legislatively exempted from the Act). Fortunately, this did not result in the extinction of the snail darter. To the contrary, it turned out there were more populations of the fish than had been assumed. See Plater, *supra* note 55, at 8 n.22 (noting the subsequent discovery of “several small relict populations”). In 1984, the FWS downlisted the snail darter from endangered to threatened status, and in 2022, the fish was delisted as recovered. *Snail Darter*, U.S. FISH & WILDLIFE SERV., <https://ecos.fws.gov/ecp/species/E010> (last visited Sept. 27, 2023).

⁵⁷ See Doremus, *supra* note 4, at 138 (“Congress has used its unquestioned power to exempt projects from the ESA only a few times, and never as emphatically as it did for the Tellico Dam.”). Note that some analysts question whether Section 7 blocks many projects. See Jacob W. Malcolm & Ya-Wei Li, *Data Contradict Common Perceptions about a Controversial Provision of the US Endangered Species Act*, 112 PNAS 15844, 15844 (2015) (finding no evidence Section 7 “stopped or extensively altered” a federal project between 2008–2015).

⁵⁸ 16 U.S.C. § 1538(a)(1)(B–C). It is worth noting that this provision applies in the United States and the high seas, but does not apply extraterritorially. See *id.*

⁵⁹ See *id.* § 1540.

⁶⁰ See *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 692 (1995).

⁶¹ See 16 U.S.C. § 1539(a)(1).

plan.”⁶² This latter provision has been used as the basis for implementing habitat conservation plans and administrative reforms intended to lessen regulatory burdens on landowners.⁶³

The ESA was last reauthorized and amended in 1988, and that authorization expired in 1992.⁶⁴ Though numerous reform proposals have been introduced and debated since, the law has yet to be reauthorized, let alone revised.⁶⁵ In lieu of substantive legislative changes, successive administrations, beginning with the Clinton Administration, have sought to address criticisms of the ESA through the adoption of various administrative reforms, including multi-species conservation plans, measures to provide conservation incentives, and greater regulatory certainty for landowners.⁶⁶

II. LISTING AND RECOVERY UNDER THE ESA

The ESA authorizes powerful regulatory tools for species conservation. Nonetheless, there is reason to wonder how much the Act actually does to conserve and recover species.⁶⁷ “In its first

⁵¹ In the view of some, this amendment to Section 10 was enacted as little more than a “token homage to private property owners.” See Sugg, *supra* note 8, at 37.

⁶³ See Douglas P. Wheeler & Dale Ratliff, *Habitat Conservation Plans*, in ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, *supra* note 6.

⁶⁴ See 16 U.S.C. § 1542 (authorizing appropriations for implementing the ESA through 1992); see also CONG. RESEARCH SERV. R46677, THE ENDANGERED SPECIES ACT: OVERVIEW AND IMPLEMENTATION 2 (2021) (noting the authorization for funding under the ESA expired in October 1992); see also *id.* at 50 n.282 (“Because the authorization for appropriations expired in FY1992, it is sometimes said that the ESA is not authorized. However, that does not mean that the agencies lack authority to conduct actions or that prohibitions within the act are no longer enforceable; those statutory provisions would continue to be law even if no money were appropriated.”).

⁶⁵ One exception is a minor amendment adopted in 2004 under the National Defense Authorization Act, Pub. L. No. 108-136, § 318, 117 Stat. 1392, 1433, to create a limited exemption to critical habitat designations for the U.S. military.

⁵³ See John H. Cushman Jr., *The Endangered Species Act Gets a Makeover*, N.Y. TIMES (June 2, 1998), <https://www.nytimes.com/1998/06/02/world/the-endangered-species-act-gets-a-makeover.html> (discussing Clinton Administration reforms). For a fuller discussion of these reforms, see Wheeler & Ratliff, *supra* note 63, at 173–77; see also Pidot, *supra* note 9, at 663–67.

⁶⁷ See Erich K. Eberhard, David S. Wilcove, & Andrew P. Dobson, *Too Few, Too Late: U.S. Endangered Species Act Undermined by Inaction and Inadequate Funding*, 17 PLOS ONE, no. 10, Oct. 2022, at 1, 1 (“A longstanding

50 years, the ESA has been credited with saving 99% of listed species from extinction,” the Department of the Interior noted in a blog post anticipating the Act’s anniversary.⁶⁸ Yet the Act is supposed to do more than keep listed species from going extinct, and the status of many species has declined under the Act’s protection.⁶⁹ Despite the federal government’s proclamations of success, the ESA’s record is a mixed one, particularly insofar as the Act’s stated goal is the “recovery” of listed species.⁷⁰

Since Congress enacted the ESA, the number of species listed as threatened or endangered has steadily grown.⁷¹ In 1973, when the law was enacted, there were fewer than 100 species on the endangered and threatened lists. As of January 2024, there were 2,367 listed animal and plant species, 1,669 of which are present in the United States.⁷² As shown in Table I, of the 2,367 listed species, 1,852 are listed as “endangered” and an additional 515 are listed as “threatened.”

concern of both supporters and opponents of the law has been the relatively low number of listed species that have successfully recovered to the point where they no longer need protection.”).

⁶⁸ *The Endangered Species Act: Celebrating 50 Years of Success in Wildlife Conservation*, U.S. DEP’T OF THE INTERIOR: BLOG (Feb. 13, 2023), <https://www.doi.gov/blog/endangered-species-act-celebrating-50-years-success-wildlife-conservation>.

⁶⁹ See *infra* notes 118-121 and accompanying text.

⁷⁰ See U.S. GOV’T ACCOUNTABILITY OFF., GAO-06-730, ENDANGERED SPECIES: MANY FACTORS AFFECT THE LENGTH OF TIME TO RECOVER SELECT SPECIES 1 (2006) (“[O]ne of the most important measures of [the ESA’s] success is the number of species that have ‘recovered,’ or improved to the point that they no longer need the act’s protection.”). But see Schwartz, *supra* note 12, at 293 (“Evaluating success as a measure of how many species are delisted is a noninformative metric if one accepts the notion that delisting, like listing, is a political choice . . .”); see also Christian Langpap, Joe Kerkvliet, & Jason F. Shogren, *The Economics of the U.S. Endangered Species Act: A Review of Recent Developments*, 12 REV. ENV’T ECON. & POL’Y 69, 73 (2017) (“[I]t is not clear whether ESA protection is effective at promoting recovery, or even how to assess its effectiveness.”).

⁷¹ See Scott et al., *supra* note 49, at 384 (2005) (“Since the inception of the Endangered Species Act in 1973, the number of endangered and threatened species listed has risen steadily . . .”); Langpap et al., *supra* note 70, at 71 (2017) (noting an average of 35 species are listed per year).

⁷² *Listed Species Summary (Boxscore)*, U.S. FISH AND WILDLIFE SERV., <https://ecos.fws.gov/ecp/report/boxscore> (last visited Oct. 22, 2023). For purposes of this analysis, listed species that are classified as having both domestic and foreign populations are included with domestic species. Note also that twenty-three species, fifteen domestic and eight foreign, are counted more than once because distinct population segments of those species were listed separately. See *id.* The lists of endangered and threatened wildlife and plants are also codified at 50 C.F.R. §§17.11-12.

Additionally, 1,425 of listed species are animals and 942 are plants. Of the 1,669 domestic listed species, the FWS reports that 1,380—or eighty-three percent—have active recovery plans.⁷³

Table 1: Listed Species

(as of 1/19/2024)

	Domestic (U.S.)			Foreign			Total		
	Animals	Plants	All	Animals	Plants	All	Animals	Plants	All
Endangered Species	487	765	1252	599	1	600	1086	766	1852
Threatened Species	243	174	417	96	2	98	339	176	515
Total Species	730	939	1669	695	3	698	1425	942	2367

In the fifty years since the ESA was enacted, only 127 species—only five percent of listed species—have been delisted.⁷⁴ This number may actually overstate the ESA’s success at conserving species. That a species has recovered to the point that the ESA’s protections are no longer necessary is one reason a species may be delisted, but it is not the only one. Species may also be delisted because they have gone extinct, or because they never should have been listed in the first place, either because the species was more numerous than believed or misclassified.⁷⁵

⁷³ *Id.*

⁷⁴ *Delisted Species*, U.S. FISH AND WILDLIFE SERV., <https://ecos.fws.gov/ecp/report/species-delisted> (last visited Jan. 14, 2024). Note that this total includes 21 species that were delisted by reason of having gone extinct in October 2023. *See* Endangered and Threatened Species: Removal of 21 Species from the List of Endangered and Threatened Wildlife, 88 Fed. Reg. 71, 644 (Oct. 17, 2023) (to be codified at 50 C.F.R. pt. 17). As of January 14, 2024, the ECOS listing omitted these recently delisted species as well as another delisted species, the Tumamoc globeberry. *See* Endangered and Threatened Wildlife and Plants; Final Rule To Delist the Plant *Tumamoca Macdougalii*, 58 Fed. Reg. 33,562 (June 18, 1993). *See also* Jonathan H. Adler, “The Strange Disappearance of the Tumamoc Globeberry,” Volokh Conspiracy (Jan. 12, 2024:26 PM), <https://reason.com/volokh/2024/01/12/the-strange-disappearance-of-the-tumamoc-globeberry/>.

⁷⁵ One reason that some species initially listed as endangered or threatened are subsequently delisted may be that there is relatively little information and knowledge about some species when they are listed, and that subsequent

According to the FWS, of the 127 species delisted, 32 were extinct and 22 were erroneously listed in the first place.⁷⁶ Thus only 73 of the delistings—or fifty-seven percent—are classified by the FWS as recoveries.⁷⁷ An additional 13 species were reclassified from “threatened” to “endangered,” and an additional 50 species were reclassified from “endangered” to “threatened.”⁷⁸

Table 2: Official Reasons for Delisting

	Overall	Domestic
Extinct	32	32
New Info Discovered	8	7
Not a Species	14	14
Recovered	73	61
Total	127	114

delisting represents the accumulation of additional information. *See* Dale D. Goble, *The Endangered Species Act: What We Talk about When We Talk About Recovery*, 49 NAT. RES. J. 1, 16 (2009) (making the general observation that “when a species is proposed for listing, relatively little is known about it”).

⁷⁶ *See id.* Some of those species listed as extinct likely went extinct prior to the ESA’s enactment or their listing as endangered. Indeed, there are as many as 97 currently listed species that are extinct or possibly extinct, the majority of which have not been sighted since before they were listed. *See* Noah Greenwald, Kieran F. Suckling, Brett Hartl, and Loyal A. Mehrhoff, *Extinction and the U.S. Endangered Species Act*, 10 PEERJ 1, 3 (2019). Some of these species have not been sighted since before the ESA was enacted. *See id.* at 6. Note that in October 2023 the FWS delisted 21 species after concluding they had previously gone extinct. *See* Endangered and Threatened Wildlife and Plants; Removal of 21 Species From the List of Endangered and Threatened Wildlife, 88 Fed. Reg. 71644 (Oct. 17, 2023)..

⁷⁷ Note that some commentators believe that this number of recovery delistings has only been achieved because of the federal government’s “low standards for recovery.” *See* Daniel J. Rohlf & Colin Reynolds, *Restoring the Emergency Room: How to Fix Section 7(A)(2) of the Endangered Species Act*, 52 ENV’T L. 685, 692 (2022).

⁷⁸ *See Reclassified Species*, U.S. FISH AND WILDLIFE SERV., <https://ecos.fws.gov/ecp/report/species-reclassified> (last visited June 2, 2023).

As illustrated in Table 2 above, the FWS claims 73 species, fewer than three percent of listed species, have been “recovered” under the Act’s protection. This too may overstate the effectiveness of the ESA’s regulatory provisions at conserving and recovering species. Of the 73 species listed as recovered by the FWS, 12 are foreign species, which lie outside of the U.S. government’s regulatory jurisdiction.⁷⁹ Another 20 of the delisted species are plants, which are not subject to the same degree of regulatory protection as are endangered animals. In particular, listed plants are not protected by the “take” prohibition under Section 9 of the Act.⁸⁰

Can it at least be said that the ESA has taken 61 species from the brink of extinction to recovery? Perhaps. Note, however, that the list of 61 domestic species includes delistings for multiple populations of Humpback whales (three) and Brown pelicans.⁸¹ The list also includes several species that either should never have been listed or that recovered for reasons that have little to do with ESA.⁸²

Take, for example, three of the first species listed as recoveries by the FWS: the Palau owl, Palau ground dove, and Palau fantail flycatcher.⁸³ As their names suggest, these three species

⁷⁹ As noted above, Section 9’s take prohibition only applies in the United States and on the high seas. The same is true of Section 7’s consultation requirement. *See* 50 C.F.R. § 402.01 (2022). Other ESA provisions bar the importation of listed foreign species. The FWS does undertake other efforts to conserve foreign species through its International Affairs Program. *See International Affairs*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/program/international-affairs> (last visited June 2, 2023).

⁸⁰ *See* 16 U.S.C. § 1538(a)(2) (detailing activities prohibited with regard to endangered species of plants). On the protection of listed plants generally, see Holly Wheeler, *Plants, in* ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, *supra* note 5, at 228.

⁸¹ *See Delisted Species. supra* note 74. All told, nine separate distinct populations of Humpback whales were listed and delisted from the endangered and threatened species list.

⁸² For a thorough examination of many such species, see Robert Gordon, *Correcting Falsely “Recovered” and Wrongly Listed Species and Increasing Accountability and Transparency in the Endangered Species Program*, HERITAGE FOUND., April 2018, at 1, app. A, at 11 (Apr. 2018); and James L. Noles, Jr., *Is “Recovered” Really Recovered?: “Recovered” Species Under the Endangered Species Act*, 39 CUMB.L. REV. 387, 397–435 (2009) (examining species delisted as recoveries prior to 2007).

⁸³ *See* Determination to Remove 3 Palau Birds from List of Endangered and Threatened Wildlife; 50 Fed Reg. 37192 (Sept. 12, 1985).

inhabit the Pacific islands that make up the republic of Palau.⁸⁴ All three likely suffered habitat loss when Palau was the site of armed conflict during World War II.⁸⁵ While heralded as an ESA-led recovery, the General Accounting Office reported in 1988 that FWS officials believed “the three Palau species owe their ‘recovery’ more to the discovery of additional birds than to successful recovery efforts.”⁸⁶

As another example, consider the American alligator, delisted with celebration and fanfare in 1987.⁸⁷ Yet as far back as 1975, conservationists recognized that alligator populations were larger and more robust than had been assumed when the species was first listed as endangered.⁸⁸ “It now appears that the animal never should have been placed on the Endangered Species List,” the National Wildlife Federation reported soon after the alligator’s delisting, because “recent evidence suggests the ‘gator was thriving in some parts of its range throughout the 1960s.”⁸⁹

The federal government almost certainly deserves credit for successful efforts to preserve raptor species. The American bald eagle, Arctic peregrine falcon, and American peregrine falcon

⁸⁴ At the time the three species were listed, Palau was part of the United States Trust Territory of the Pacific established by United Nations Security Council Resolution 21. *See* S.C. Res. 21, art. 1, 2 (Apr. 2, 1947). For a discussion of Palau’s migration from trust territory to independent republic, *see* generally Chimène I. Keitner & W. Michael Reisman, *Free Association: The United States Experience*, 39 TEX. INT’L L.J. 1, 33–62 (2003).

⁸⁵ *See* Endangered and Threatened Wildlife and Plants; Determination to Remove Three Palau Birds From the Lists of Endangered and Threatened Species, 50 Fed. Reg. 37192, 37193 (Sept. 12, 1985) (to be codified at 50 C.F.R. pt. 17).

⁸⁶ U.S. GEN. ACCT. OFF., GAO/RCED-89-5, ENDANGERED SPECIES: MANAGEMENT IMPROVEMENTS COULD ENHANCE RECOVERY PROGRAM 18 (1988).

⁸⁷ *See* Endangered and Threatened Wildlife and Plants; Reclassification of the American Alligator to Threatened Due to Similarity of Appearance Throughout the Remainder of Its Range, 52 Fed. Reg. 21059 (June 4, 1987) (to be codified at 50 C.F.R. pt. 17). Note that the American alligator retains a classification as “similarity of appearance (threatened),” due to its resemblance to other listed crocodilian species. *Id.* at 21062.

⁸⁸ *See* Noles, *supra* note 82, at 397–401; Gordon, *supra* note 82, at 11.

⁸⁹ *See* Thomas A. Lewis, *Searching for Truth in Alligator Country*, NAT’L WILDLIFE, Oct.–Nov. 1987, at 12, 14; *see also* Sugg, *supra* note 8, at 43–44, 44 n.272 (discussing reasons why the American alligator should not be considered a species “recovered” by the Act).

were all threatened by the widespread spraying of the pesticide DDT.⁹⁰ Limits on DDT's use following the Environmental Protection Agency's cancellation of its registration undoubtedly helped these and other threatened raptor species.⁹¹ Yet the EPA banned DDT in 1972, before the ESA was enacted, let alone when the FWS was able to begin meaningful conservation efforts under the Act.⁹²

Where the ESA has led to the recovery of endangered species, it has typically been because there was a specific identified threat that could be readily addressed through direct management measures rather than through the ESA's primary regulatory provisions. The Act also appears to have encouraged federal agencies to consider how their actions may affect listed species. The ESA also appears more effective at addressing some threats to species populations, such as extractive resource use (which primarily occurs on federal land), hunting, and natural threats (e.g. predators), than others.⁹³

Recovery of the Aleutian Canada Goose, for instance, was facilitated by the removal of predators from nesting grounds, largely on federal lands, and hunting limitations, combined with

⁹⁰ See THOMAS R. DUNLAP, DDT: SCIENTISTS, CITIZENS AND PUBLIC POLICY 137 (1981) (discussing the threat DDT posed to bird populations); Donell R. Grubbs, *Of Spotted Owls and Bald Eagles: Raptor Conservation Soars into the '90s*, 19 CAP. U. L. REV. 451, 462–63 (1990); see also Patrick Parenteau, *She Runs with Wolves*, 21 VT. L. REV. 743, 747 (1997) (“DDT was not just a pest killer, it was an eagle killer, an osprey killer, a peregrine falcon killer, an indiscriminate killer.”).

⁹¹ Also of note, habitat loss was not a particular concern for raptor species such as the bald eagle and peregrine falcon at the time of the ESA's enactment. See Michael Oppenheimer, David S. Wilcove, & Michael J. Bean, *A Moment of Truth: Correcting the Scientific Errors in Gregg Easterbrook's A Moment on the Earth*, 25 ENV'T L. 1293, 1315 (1995) (book review) (“When DDT was banned, both species had considerable amounts of habitat in which to live and reproduce.”).

⁹² See Consolidated DDT Hearings, 37 Fed. Reg. 13369, 13375 (July 7, 1972) (affirming EPA order to cancel the DDT's registration for use on crops); see also *Toward a Noisier Spring: D.C. Circuit Upholds Cancellation of DDT Registrations*, 4 Env'tl. L. Rep. (Env'tl. Law Inst.) 10013 (1974).

⁹³ Julie K. Miller, J. Michael Scott, Craig R. Miller, & Lisette P. Waits, *The Endangered Species Act: Dollars and Sense?*, 52 BIOSCIENCE 163, 164, 166 (2002).

the translocation of birds to predator-free habitat.⁹⁴ The Lake Erie water snake was listed as threatened in 1999 and then delisted only twelve years later after a public education campaign, improved state land management and the acquisition of conservation easements helped its population increase by over eighty percent.⁹⁵ As noted above, the law has successfully altered federal land management practices and raised the salience of species conservation in many federal agencies. Harder to come by are examples of species that have recovered largely due to the Act's regulatory provisions, particularly the limitations on private land use under Section 9.

Some conservationists argue that “counting only the number of recovery-related delistings does not give a true measure of the Act's success.”⁹⁶ Considering the extent to which the ESA has slowed some species' slide into extinction, stabilized threatened populations, or otherwise increased some species' chances of survival, may provide a more complete picture of the Act's performance. By some estimates, the ESA is estimated to have saved nearly 300 species from extinction since its enactment.⁹⁷ If this estimate is accurate, many more species have been saved from extinction than are believed to have gone extinct while under the Act's protection.⁹⁸ The FWS claims that the ESA is having a beneficial effect on some imperiled species: it reported that

⁹⁴ Dale D. Goble, *Recovery in a Cynical Time—With Apologies to Eric Arthur Blair*, 82 WASH. L. REV. 581, 587 (2007); Aaron M. Haines, Matthais Leu, Delaney, M. Costante, Tyler C. Treacle, Carli Parenti, Jennifer R. B. Miller, & Jacob W. Malcolm, *Benchmark for the ESA: Having a Backbone Is Good for Recovery*, 2 FRONTIERS CONSERVATION. SCI., no. 630490, 2021, at 1, 6.

⁹⁵ See KIERAN SUCKLING, NOAH GREENWALD, & TIERRA CURRY, CTR. FOR BIOLOGICAL DIVERSITY, ON TIME, ON TARGET: HOW THE ENDANGERED SPECIES ACT IS SAVING AMERICA'S WILDLIFE 8 (2012).

⁹⁶ Krishna Gifford, *Measuring Recovery Success*, ENDANGERED SPECIES BULL., Fall 2007, at 3, 4.

⁹⁷ See Greenwald et al., *supra* note 76, at 3 (estimating the ESA prevented the extinction of 291 species in its first 45 years). An earlier study estimated that the ESA prevented the extinction of 227 species during its first thirty years. See J. Michael Scott et al., *By the Numbers*, in THE ENDANGERED SPECIES ACT AT THIRTY, *supra* note 14, at 16, 31.

⁹⁸ See Greenwald et al., *supra* note 76, at 2.

as of 2007 just over forty percent of listed species were “doing better” since their initial listing.⁹⁹ Yet it does not appear that most listed species benefit from being listed.¹⁰⁰

One question is whether the ESA has had sufficient time to work for the benefit of listed species.¹⁰¹ While fifty years is a long time, not all listed species have been listed that whole time, and Congress rarely provides the FWS and NMFS the funding the ESA’s requirements demand.¹⁰² Not all listed species are capable of a quick recovery, so it is reasonable and foreseeable that many listed species will remain on the list for years, if not decades. The recovery plan for the Florida panther, for instance, projects that its population will not be sufficiently large and stable to be delisted until 2085.¹⁰³

The panther may be an extreme case, but it illustrates how it can take a long time for some species to recover. A 2012 report by the Center for Biological Diversity (CBD) noted that the projected delisting dates for many species were well in the future, and that (of the species reviewed) most of those with anticipated recovery dates prior to 2011 were delisted on schedule.¹⁰⁴ On this basis, the report’s authors concluded that the ESA was recovering species “on time.” Yet the species reviewed in the CBD study may not be representative of those listed as endangered or

⁹⁹ Gifford, *supra* note 96, at 4.

¹⁰⁰ See Pidot, *supra* note 9, at 661 (observing that “[t]he status of more than 90 percent of species has remained unchanged since their listing.”). It is possible that species that have not improved since listing would be worse off had the ESA not been enacted and had they not been listed as threatened or endangered.

¹⁰¹ See Greenwald, *supra* note 76, at 1 (“The number of delistings, however, is a poor measure of the success of the ESA because most species have to been protected for sufficient time such that they would be expected to have recovered.”).

¹⁰² See Jacob Malcolm, *Consequences of Resource Limitations on Endangered Species Implementation, in* ENDANGERED SPECIES ACT: LAW, POLICY, AND PERSPECTIVES, *supra* note 6, at 417 (noting the ESA has been “systematically underfunded for decades”).

¹⁰³ See Suckling et al., *supra* note 95, at 13.

¹⁰⁴ See *id.* at 4.

threatened. Ninety percent of the species in the CBD study had recovery plans.¹⁰⁵ By comparison, only eighty-three percent of listed species overall have active recovery plans.¹⁰⁶ Further, only a handful of the seventeen species listed in the study with projected delisting dates between 2012 and 2022 were actually delisted as of June 2023.¹⁰⁷ The CBD's optimistic assessment was premature. A subsequent report prepared by the Property and Environment Research Center reviewing available recovery plans has identified nearly 300 species for which the FWS had anticipated recovery by 2023, and it is nowhere near that goal.¹⁰⁸ Nearly 250 species that the FWS expected to recover by 2023 failed to reach that benchmark, and as-yet-unrecovered species are, on average over ten years past their anticipated recovery date.¹⁰⁹ Worse, of the 300 species the FWS expected to recover by 2023, only 13 have recovered.¹¹⁰

As noted above, species recovery is not necessarily a quick process. Thus, it may still take several more decades to observe the ESA's effect on some species. Most listed species were not suddenly imperiled overnight, and recovery may take as long, if not longer, due to a wide range of ecological and reproductive factors. Nonetheless, the rate of delistings appears to be increasing, as shown in Table 3. This is consistent with research suggesting that species are more likely to be improving the longer they are listed under the Act.¹¹¹ Yet it is also true that the ESA is not

¹⁰⁵ *Id.* (noting 99 of the 110 species reviewed had a federal recovery plan).

¹⁰⁶ *See* U.S. FISH AND WILDLIFE SERV., *supra* note 72.

¹⁰⁷ *See* Suckling et al., *supra* note 95, at 5–6.

¹⁰⁸ *See* Katherine Wright & Shawn Regan, *Missing the Mark: How the Endangered Species Act Falls Short of Its Own Recovery Goals*, PERC (July, 26, 2023), <https://www.perc.org/2023/07/26/missing-the-mark/>.

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ *See infra* note 120, and accompanying text.

recovering species as rapidly as anticipated or desired, and that merely recovering those species the FWS predicted would be recovered by now could take several more decades.¹¹²

Table 3: Domestic Recoveries Over Time

	Number	Rate (#/year)
1980-89	5	0.5
1990-99	3	0.3
2000-09	8	0.8
2010-19	29	2.9
2020-23	16	4

Although it may be too early to assess the overall performance of the ESA, after a half-century, it is possible to make some assessment how the ESA's regulatory protections help species. Endangered animal species receive greater regulatory protections under the ESA than endangered plants.¹¹³ Yet this does not appear to translate into greater conservation of animal species.¹¹⁴ One study found endangered species are less likely to be improving than threatened species, despite the increased level of regulatory protection. Perhaps the fact that endangered species populations were likely to be in worse condition in the first place explains the better outcome for threatened

¹¹² See Wright & Regan, *supra* note 108.

¹¹³ See *infra* note 80 and accompanying text.

¹¹⁴ Martin F. J. Taylor et al, *The Effectiveness of the Endangered Species Act: A Quantitative Analysis*, 55 *BIOSCIENCE* 360, 365 (2005).

species.¹¹⁵ Alternatively, the added regulatory restrictions triggered by an endangered listing may not be providing much additional protection in practice.

Between 1990 and 2010 the FWS and NMFS submitted biennial status reports on species status to Congress.¹¹⁶ These reports, despite their limitations,¹¹⁷ suggested the ESA may help some listed species maintain their populations but is improving the condition of relatively few. Between 1990 and 2010, far more species were classified as declining than improving, though the ratio has improved over that time.¹¹⁸ A plurality of listed species were classified as “stable,” while the status of an increasing proportion of listed species was deemed unknown. In the last report, the status for half of species was declining or unknown, over four times as many as were considered improving. Despite the potential value of this data, the FWS stopped including it in its biennial reports after 2010.¹¹⁹

Table 4: Species Status in 1990 and 2010

Status	1990	2010	Change
Improving	14%	12%	-2
Stable	32%	37%	5
Declining	36%	26%	10
Extinct	2%	1%	-1

¹¹⁵ *Id.* at 365–66.

¹¹⁶ See *Recovery Reports to Congress*, U.S. FISH AND WILDLIFE SERV. (Aug. 1, 2022), <https://www.fws.gov/library/collections/recovery-reports-congress>.

¹¹⁷ See *infra* notes 124–125, and accompanying text.

¹¹⁸ See Langpap et al., *supra* note 70, at 72.

¹¹⁹ See *id.*, at 72 n.9.

Captive		1%	1
Unknown	16%	24%	8

Several studies suggest that listing species and funding recovery efforts are beneficial to species, and increasingly so over time. For instance, one study concluded that the longer a species is listed under the act, the more likely it is to be stable or improving.¹²⁰ It also found that the completion of a recovery plan has a similar effect.¹²¹ There also appears to be a positive relationship between species recovery and the percentage of recovery goals set out in a species’ recovery plan achieved for that species.¹²² Another study found evidence that species-related spending correlates with preventing continued deterioration of a listed species status.¹²³ Yet insofar as these studies rely upon FWS assessments of species “status trends,” they may be questioned. The data upon which status trends are based is “inconsistent and of questionable accuracy” and “trends for some species are simply the best guesses of USFWS personnel.”¹²⁴ FWS assessments of species status are somewhat subjective, lack transparent criteria, and “may be manipulated to achieve agency objectives.”¹²⁵

¹²⁰ See Taylor et al., *supra* note 114, at 360–61.

¹²¹ *Id.* at 364.

¹²² Robbyn J. F. Abbitt & J. Michael Scott, *Examining Differences Between Recovered and Declining Endangered Species*, 15 CONSERVATION BIOLOGY 1274, 1274 (2001).

¹²³ See Joe Kerkvliet & Christian Langpap, *Learning from Endangered and Threatened Species Recovery Programs: A Case Study Using U.S. Endangered Species Act Recovery Scores*, 63 ECOLOGICAL ECON. 499, 506 (2007).

¹²⁴ J. Alan Clark, Jonathan M. Hoekstra, P. Dee Boersma, & Peter Kareiva, *Improving U.S. Endangered Species Act Recovery Plans: Key Findings and Recommendations of the SCB Recovery Plan Project*, 16 CONSERVATION BIOLOGY 1510, 1514 (2002); see also P. Dee Boersma, Peter Kareiva, William F. Fagan, J. Alan Clark, & Jonathan M. Hoekstra, *How Good Are Endangered Species Recovery Plans?*, 51 BIOSCIENCE 643, 645 (2001).

¹²⁵ Paul J. Ferraro, Craig McIntosh, & Monica Ospina, *The Effectiveness of the U.S. Endangered Species Act: An Econometric Analysis Using Matching Methods*, 54 J. ENV’T ECON. & MGMT. 245, 247 (2007).

With that caveat in mind, there is evidence that ESA-related spending helps at least some species. A 2007 study in *Ecological Economics* found, consistent with prior research, that “spending is correlated with improved status.”¹²⁶ This study also found that “ESA-related spending is more effective in preventing deterioration than in promoting improvements in recovery status.”¹²⁷ As the authors explained, “increased spending reduces the probability that FWS will classify a species as extinct or declining” but “evidence does not support the hypothesis that increased spending leads to increases in the probability that a species is stable or improving.”¹²⁸ That is, insofar as the ESA helps, it is more effective at preventing extinction than fueling recovery. This result could be explained by the fact that those species identified as having “high recovery potential” are less likely to be declining or extinct, and slightly more likely to be classified as improving.¹²⁹ This same study found no effect from designation of critical habitat.¹³⁰

The ESA requires the designation of critical habitat when a species is listed as endangered, but such designations have only limited legal import, particularly on private land.¹³¹ Whether designating critical habitat improves a species status is disputed. One study found that species for which critical habitat was designated were more likely to be improving.¹³² Yet a subsequent study found no effect from designation once researchers accounted for recovery spending.¹³³ Indeed,

¹²⁶ Kerkvleit & Langpap, *supra* note 123, at 506.

¹²⁷ *Id.*

¹²⁸ *Id.* at 508.

¹²⁹ *Id.*

¹³⁰ *Id.* at 506.

¹³¹ Section 7 of the ESA generally requires federal agencies to “insure that any action authorized, funded, or carried out” by them “insure” “insure” that their actions do not will not “result in the destruction or adverse modification” of critical habitat. 16 U.S.C. §1536. There is no equivalent prohibition under Section 9. *See id.* at §1538.

¹³² Taylor et al., *supra* note 114, at 361–62.

¹³³ *See* Kerkvliet & Langpap, *supra* note 123, at 506.

there is some evidence that critical habitat designations can increase development pressure on private land.¹³⁴

Other research casts doubt on the claim that listing species, in itself, is helpful for species. A 2007 study found that listing a species can actually be detrimental if the listing is not followed with significant funding on species recovery.¹³⁵ Consistent with some prior studies, it found that the ESA can be effective at improving species status with substantial resource commitments, at least in some cases. Specifically, this study found that listing a species alone has no positive effect, but listing combined with funding has a positive effect and listing with little or no funding has a significant negative effect.¹³⁶ On this basis, the authors concluded that “the ESA works when it is backed up with money, and not otherwise.”¹³⁷ As the authors explained: “Our analysis suggests that it is not the act of listing itself that matters, but rather high levels of expenditures for recovery combined with listing. Simply listing a species in the absence of such expenditures appears to lead to a decline.”¹³⁸ The authors could not conclude that the ESA is ineffective, as there is no counterfactual group of unlisted species that receive substantial funding.¹³⁹ The authors of this study hypothesize that the negative effect of listing without funding is due to perverse incentives on private landowners, and that species-specific funding is a likely proxy for increased monitoring

¹³⁴ See Jeffrey E. Zabel & Robert W. Paterson, *The Effects of Critical Habitat Designation on Housing Supply: An Analysis of California Housing Construction Activity*, 46 J. REG’L SCI. 67, 67 (2006).

¹³⁵ See Ferraro et al., *supra* note 125, at 246 (“Our results indicate that success can be achieved when the ESA is combined with substantial species-specific spending, but listing in the absence of funding appears to have adverse consequences for species recovery. This implies that using scarce conservation funding in the contentious process of listing a species may be less effective than using this funding to promote recovery directly.”).

¹³⁶ *Id.* at 252.

¹³⁷ *Id.* at 256.

¹³⁸ *Id.*

¹³⁹ See *id.* at 247. It is possible that efforts to conserve candidate species, through so-called “candidate conservation agreements,” might eventually provide data that could be used for such a comparison.

and enforcement of the ESA’s strictures. “Seen in this light, it is only the credible potential of enforcement that renders the ESA effective.”¹⁴⁰

A closer look at the data suggests an alternative hypothesis. Different government agencies achieved varying degrees of success in protecting species, and the effectiveness of government spending does not appear to correlate with enforcement authority. The aforementioned study looked at species-related expenditures aggregated by agency, and found the following: “Forest Service spending has the strongest positive effect, followed by the Bureau of Land Management and the Fish and Wildlife Service.”¹⁴¹ In other words, spending by land management agencies (which have no authority to enforce the Act’s regulatory provisions) appears to be more effective than spending by the primary regulatory agency (which also has some land management responsibilities of its own). This would suggest that spending on species conservation on federal lands is more effective than expenditures seeking to protect species on private land, or that spending on direct conservation measures is more effective than spending on regulatory programs aimed at controlling private behavior.

While only suggestive, this interpretation is consistent with other research showing that species conservation efforts have been more effective on federal land than on nonfederal land. One recent study found that “preemptive conservation” efforts—efforts to remove or reduce threats to species *before* they need to be listed as threatened or endangered—have been more successful on

¹⁴⁰ Ferraro et al., *supra* note 125, at 256.

¹⁴¹ *Id.*

public lands.¹⁴² Among the reasons for this appear to be that public land managers face significantly different incentives than to private landowners.¹⁴³

Prior research has found that “[s]pecies found exclusively on federal lands are more likely to be improving than those with mixed or private ownership.”¹⁴⁴ One study in particular found that “[t]he ratio of declining species to improving species is 1.5 to 1 on federal lands, and 9 to 1 on private lands.”¹⁴⁵ As Robert Bonnie of the Environmental Defense Fund summarized, “species that occur exclusively on non-federal lands (the majority of which are in private ownership) appear to be faring considerably worse than species reliant upon the federal land base.”¹⁴⁶ These findings should not be a surprise, as the ESA can induce affirmative conservation measures on federal lands but can do little more than prevent harm to species on nonfederal land, often at the cost of discouraging voluntary conservation. Insofar as many listed species are conservation dependent, this can make a real difference.

One difficulty in assessing the effectiveness of the ESA is the persistently incomplete funding of the Act’s implementation.¹⁴⁷ By at least one account, the FWS receives half the money

¹⁴² See Tyler Treacle, Rebecca Epanchin-Niell, & Gwenllian D. Iacona, *Factors Associated with Preemptive Conservation under the U.S. Endangered Species Act*, 37 CONSERVATION BIOLOGY, Oct. 2023, at 12 (“Our results suggest that mechanisms for preemptive conservation on public lands are comparatively more successful at precluding listing.”).

¹⁴³ *Id.* at 11.

¹⁴⁴ Schwartz, *supra* note 12, at 293; see also Adam J. Eichenwald, Michael J. Evans, & Jacob W. Malcolm, *US Imperiled Species Are Most Vulnerable to Habitat Loss on Private Lands*, 18 FRONTIERS ECOLOGY & ENV’T 439, 443 (2020) (“Habitat losses for imperiled species were lowest on federal lands and highest on protected private and non-protected lands.”).

¹⁴⁵ Brown & Shogren, *supra* note 8, at 10.

¹⁴⁶ Robert Bonnie, *Endangered Species Mitigation Banking: Promoting Recovery through Habitat Conservation Planning Under the Endangered Species Act*, 240 SCI. TOTAL ENV’T 11, 12 (1999).

¹⁴⁷ Eberhard et al., *supra* note 67, at 4 (“[I]nadequate funding has persisted for decades.”); Alejandro E. Camacho & Melissa L. Kelly, *Six Priority Recommendations for Improving Conservation Under the ESA*, 51 ENVTL. L. REP. (ENVTL. LAW INST.) 10785, 10787 (2021) (“Inadequate and unstable funding for ESA implementation is a perennial problem that hampers every aspects of the Act.”); Fischman et al., *supra* note 7, at 982 (“Congressional

necessary to properly implement the ESA.¹⁴⁸ An unhealthy portion of FWS and NMFS spending on endangered species program goes to administrative processes and the listing of species, rather than to actual conservation efforts.¹⁴⁹ This is concerning. As noted above, at least one study suggests that listing a species may cause the species' status to decline if conservation efforts are not adequately funded. Further, the FWS has failed to complete more than one-quarter of planned recovery actions for a majority of listed species.¹⁵⁰ It is certainly possible that a fully funded and fully implemented ESA would be more successful at protecting and recovering listed species, but that is not the ESA we have had for the past fifty years.

III. THE PRIVATE LAND PROBLEM

Habitat loss is the primary threat to endangered species in the United States, and around the world.¹⁵¹ Because most endangered and threatened species habitat is privately owned, protecting species from habitat loss requires conservation on private land. At least two-thirds of

appropriation for ESA recovery supplies less than twenty-five percent of the funding needed to carry out recovery plans, which exist for only two-thirds of listed species”).

¹⁴⁸ Megan Evansen et. al., *Funding Needs for the U.S Fish and Wildlife Service's Endangered Species Programs: 2024*, DEFS. WILDLIFE 1, 2 (2022), https://defenders-cci.org/files/ESA_funding_request_FY2024.pdf; see also Miller et al., *supra* note 93, at 167 (2002) (noting conservation agencies have less than 20 percent of the funding necessary for species recovery actions).

¹⁴⁹ See Evans et al., *supra* note 46, at 9. But see Christian Langpap & Joe Kerkvliet, *Allocation Conservation Resources Under the Endangered Species Act*, 92 AM. J. AGRIC. ECON. 110, 110, 122–23 (2010) (suggesting that the allocation of species-related funding within FWS does not compromise conservation efforts).

¹⁵⁰ See Katherine Wright, *The Endangered Species Act at 50: By the Numbers*, PERC REPORTS, Fall 2023, at 28 (“Based on its own assessments, the agency has completed less than a quarter of its recovery actions for 85 percent of listed species.”).

¹⁵¹ See David S. Wilcove, David Rothstein, Jason Dubow, Ali Phillips, & Elizabeth Losos, *Quantifying Threats to Imperiled Species in the United States*, 48 BIOSCIENCE 607, 607 (1998) (“scientists agree that habitat destruction is the primary lethal agent”); *id.* at 609 (finding that habitat destruction and degradation contributed to the endangerment of 85 percent of species analyzed); see also Aaron S. Hogue & Kathryn Breon, *The Greatest Threats to Species*, CONSERVATION SCIENCE & PRACTICE (2022), <https://doi.org/10.1111/csp2.12670> (surveying threats globally),

endangered species rely upon private land for some or all of their habitat.¹⁵² Even if all federal lands were managed exclusively for species conservation, it would not be sufficient to save many imperiled species, as a significant percentage are exclusively found on private lands.¹⁵³ Private land is often ecologically superior to government lands of the same type as well.¹⁵⁴ If the ESA is to be effective at conserving species by preserving their habitats, it must be effective at doing so on private land, and yet that appears to be where the Act has been the least effective. Yet because the lion's share of endangered species habitat is privately owned, if endangered species habitat is not preserved on private land, many endangered species will not survive.

¹⁵² Evans et al., *supra* note 46, at 14 (“More than two-thirds of all listed species occur on private lands, and about one-third occur only on private lands.”); Jodi Hilty & Adina M. Merenlender, *Studying Biodiversity on Private Lands*, 17 CONSERVATION BIOLOGY 132, 133 (2003) (“At least some habitat for 95% of all federally threatened and endangered flora and fauna falls on private land”); David S. Wilcove & Joon Lee, *Using Economic and Regulatory Incentives to Restore Endangered Species: Lessons Learned from Three Programs*, 18 CONSERVATION BIOLOGY 639, 640 (2004) (estimating that “private lands harbor at least one population of two-thirds of all federally listed species . . . is almost certainly an underestimate”).

¹⁵³ Niall G. Clancy, John P. Draper, J. Marshall Wolf, Umarfarooq A. Abdulwahab, Maya C. Pendleton, Soren Brothers, Janice Brahney, Jennifer Weathered, Edd Hammill, & Trisha B. Atwood, *Protecting Endangered Species in the USA Requires Both Public and Private Land Conservation*, 10 SCI. REPS. 11925, 11928 (2020) (“[P]rotected areas in the USA are failing to sufficiently protect biodiversity because there is poor spatial overlap between endangered species and the placement of current protected areas.”). The need for species conservation on private land has been understood for at least twenty-five years. See John F. Turner & Jason C. Rylander, *The Private Lands Challenge: Integrating Biodiversity Conservation and Private Property*, in PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES 92, 116 (Jason F. Shogren ed., 1998) (“No strategy to preserve the nation’s overall biodiversity can hope to succeed without the willing participation of private landowners.”); Stephen Polasky & Holly Doremus, *When the Truth Hurts: Endangered Species Policy on Private Land with Imperfect Information*, 35 J. ENV’L ECON. & MGMT. 22, 22 (1998) (“Any effective species preservation policy will require conservation on private land.”).

¹⁵⁴ Hilty & Merenlender, *supra* note 152, at 133 (“Although there are exceptions, private lands tend to be more productive, better watered, and higher in soil quality than public land”); see also J. Michael Scott, Frank W. Davis, R. Gavin McGhie, R. Gerald Wright, Craig Groves, & John Estes, *Nature Reserves: Do They Capture the Full Range of America’s Biological Diversity?*, 11 ECOLOGICAL APPLICATIONS 999, 999 (2001); Karl Hess, Jr., *Saving Space for Species: The Conservation Challenge for the 21st Century*, in SAVING A PLACE: ENDANGERED SPECIES IN THE 21ST CENTURY 7-8 (John A. Baden & Pete Geddes eds., 2000)(explaining how historic settlement patterns fragmented ecosystems and created an “ecological deficit” on government-owned lands).

Why is the ESA failing to conserve species on private land? One likely culprit is the structure of the ESA itself, and the incentives it creates for private landowners.¹⁵⁵ In the simplest terms, the ESA penalizes owners of species habitat and so discourages habitat creation and conservation on private land. As former FWS Director Sam Hamilton observed in 1993, when he oversaw FWS efforts in Texas: “The incentives are wrong here. If I have a rare metal on my property, its value goes up. But if a rare bird occupies the land, its value disappears.”¹⁵⁶ While this observation is now widely accepted, the ESA has not been revised to account for the perverse incentives it can create.

Under Section 9 of the Act, it is illegal for a private landowner to engage in activities that could “harm” an endangered species, including habitat modification, without first obtaining a federal permit. Acquiring permits may be costly and time consuming, and can be the source of substantial uncertainty, particularly for smaller landowners, notwithstanding recent efforts to provide landowners with regulatory assurances and facilitate habitat conservation planning. “Taking” a species without a permit, including by adverse habitat modification, can lead to fines of up to \$25,000 and even jail time. While not always stringently enforced, the threat remains, and the FWS is notoriously slow to approve activities that could harm species habitat.

Section 9 is not the only portion of the Act that affects private landowners. Section 7 constrains other actions on private land that are subject to federal permitting requirements. For instance, the U.S. Army Corps of Engineers will not grant a permit to fill a wetland under Section 404 of the Clean Water Act if the wetland is potential endangered species habitat unless it can

¹⁵⁵ See Amy W. Ando & Christian Langpap, *The Economics of Species Conservation*, 10 ANN. REV. RES. ECON. 445, 448 (2018) (“[T]he ESA is not designed to be efficient or cost-effective, provides no incentives for active stewardship of endangered species habitat, and can even give private landowners incentives to preemptively destroy habitat to evade regulation.”).

¹⁵⁶ Betsy Carpenter, *The Best-Laid Plans*, U.S. NEWS & WORLD REP., Oct. 4, 1993, at 89.

ensure the action will not jeopardize a listed species or its habitat. To meet this requirement, a landowner may be required to mitigate her development by acquiring and conserving multiple acres of wetlands for each one she seeks to develop.

These requirements can reduce private land values and antagonize private landowners who might otherwise cooperate with conservation efforts. The ESA’s regulatory restrictions impose significant economic impacts on landowners and resource-dependent communities.¹⁵⁷ Because the ESA’s regulatory restrictions ineluctably follow once an animal species is listed as endangered, these economic consequences are the result of the normal operation of the Act.¹⁵⁸

Although critical habitat designation does not have direct legal consequences under Section 9, it has a negative effect on land values.¹⁵⁹ One reason for this is that it can affect the implementation of federal permitting programs, and can trigger more stringent land-use regulation by state agencies.¹⁶⁰ Another is that critical habitat designation may be understood as an indication that activities on that land are more likely to threaten species, and potentially violate Section 9.¹⁶¹

¹⁵⁷ See, e.g., Richard T. Melstrom, *The Effect of Land Use Restrictions Protecting Endangered Species on Agricultural Land Values*, 103 AM. J. AGRIC. ECON. 162, 162 (2020) (finding species listing results in a four percent decline in farm value and profit in dryland areas); Richard T. Melstrom, Kangil Lee, & Jacob Byl, *Do Regulations to Protect Endangered Species on Private Lands Affect Local Employment? Evidence from the Listing of the Lesser Prairie Chicken*, 43 J. AGRIC. & RES. ECON. 346, 346 (2018) (finding listing of the lesser prairie chicken resulted in a measurable decline in employment in affected counties).

¹⁵⁸ Fischman et al., *supra* note 7, at 997 (noting that listing is like a “toggle switch” flipping a species’ status and resulting regulations on and off). As noted earlier, plant species are not subject to the same regulatory provisions. See *supra* note 80, and accompanying text. Whether threatened species trigger equivalent regulatory restrictions as do endangered species depends upon FWS regulations under Section 4(d). 16 U.S.C. § 1533(d) (providing that when a species is listed as threatened, FWS may choose to apply the Section 9 prohibition to that species). In recent years, there has been substantial debate and controversy over whether equivalent regulatory provisions should apply to threatened species by default.

¹⁵⁹ See Maximilian Auffhammer, Maya Duru, Edward Rubin, & David L. Sunding, *The Economic Impact of Critical Habitat Designation: Evidence from Vacant-Land Transactions*, 96 LAND ECON. 188 (2020).

¹⁶⁰ *Id.* at 189, 191; see also Jonathan Wood & Tate Watkins, *Critical Habitat’s “Private Land Problem”: Lessons from the Dusky Gopher Frog*, 51 ENVTL. L. REP. 10565, 10569 (2021) (discussing potential legal and economic consequences of critical habitat designation for Dusky gopher frog).

¹⁶¹ Wood & Watkins, *supra* note 160, at 10570 (“[P]rospective purchasers account for the risks and anticipate regulatory burdens associated with the designation.”).

It is also the case that “markets respond to more than legal formalities.”¹⁶² Accordingly, multiple studies have found that critical habitat designation can have negative effects on housing supply and on land values. One recent study examining the designation of critical habitat for two species in California found “large and statistically significant decreases” in land values for vacant parcels.¹⁶³ This is consistent with another recent study examining the consequences of critical habitat designation for the pygmy owl, which found a three percent decline in property values in affected counties.¹⁶⁴ Other research has found that critical habitat designation reduces the supply of housing permits in California.¹⁶⁵

Because the ESA imposes significant costs on those who own or live near habitat for listed species habitat, it turns would-be conservationists into opponents of conservation efforts. As several prominent conservation biologists observed in *Conservation Biology*, “the regulatory approach to conserving endangered species and diminishing habitats has created anti-conservation sentiment among many private landowners who view endangered species as economic liabilities”¹⁶⁶ They further explained:

Landowners fear a decline in the value of their properties because the ESA restricts future land-use options where threatened or endangered species are found but

¹⁶² See Jonathan Klick & J.B. Ruhl, *The Costs of Critical Habitat or Owl’s Well that Ends Well* 16 (Nov. 03, 2020) (on file with the University of Pennsylvania Carey Law School All Faculty Scholarship), https://scholarship.law.upenn.edu/faculty_scholarship/2231/.

¹⁶³ See Auffhammer et. al., *supra* note 160, at 205.

¹⁶⁴ See Klick & Ruhl, *supra* note 140, at 10–11.

¹⁶⁵ Jeffrey E. Zabel & Robert W. Paterson, *The Effects of Critical Habitat Designation on Housing Supply: An Analysis of California Housing Construction Activity*, 46 J. REG’L SCI. 67, 67 (2006). Commenting on this research, Langpap et al., observe that critical habitat designations appear to “cause a large redistribution of welfare.” See Langpap et al., *supra* note 70, at 76.

¹⁶⁶ Martin B. Main, Fritz M. Roka, & Reed F. Noss, *Evaluating Costs of Conservation*, 13 CONSERVATION BIOLOGY 1262, 1263 (1999).

makes no provisions for compensation. Consequently, endangered species are perceived by many landowners as a financial liability, resulting in anti-conservation incentives because maintaining high-quality habitats that harbor or attract endangered species would represent a gamble against loss of future economic opportunities.¹⁶⁷

The result of these perverse incentives is that there is less and lower-quality available habitat for endangered species on private land.¹⁶⁸ Such regulations may even encourage landowners to destroy or degrade potential habitat on their land. It is not illegal to modify land that might become endangered species habitat some day in the future, nor are landowners required to take affirmative steps to maintain endangered species habitat. Yet even if such actions are not taken, the Act creates substantial incentives for private landowners not to encourage species conservation on their own land.¹⁶⁹

There are numerous accounts of landowners engaging in preemptive habitat destruction—that is, perfectly legal measures to make their land less hospitable to current or potential listed species before it is subject to regulation. In the Pacific Northwest, for instance, the FWS found that land-use restrictions imposed to protect the northern spotted owl scared private landowners enough that they “accelerated harvest rotations in an effort to avoid the regrowth of habitat that is

¹⁶⁷ *Id.* at 1265.

¹⁶⁸ Michael J. Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, 38 IDAHO L. REV. 409, 415 (2002).

¹⁶⁹ For a list of examples, see Jonathan H. Adler, *Money or Nothing: The Adverse Environmental Consequences of Uncompensated Regulatory Takings*, 49 B.C. L. REV. 301, 321–22 (2008).

usable by owls.”¹⁷⁰ Meanwhile, down in Texas, landowners razed hundreds of acres of juniper tree stands after the FWS listed the golden-cheeked warbler as an endangered species.¹⁷¹ And in California, landowners destroyed vegetation helpful for endangered species to prevent potential occupation, even at great personal expense. Said one, “the risk of not doing it is too great.”¹⁷²

Several empirical studies confirm the negative effects of the ESA on private land conservation. Two such studies found evidence of preemptive habitat destruction by forest landowners in the eastern United States due to the listing and presence of red-cockaded woodpeckers. The first found that private landowners engaged in preemptive habitat destruction when the presence of endangered red-cockaded woodpeckers placed the landowners at risk of federal regulation and a loss of their timber investment.¹⁷³ Providing habitat for a single woodpecker colony could cost a private timber owner as much as \$200,000 in foregone timber harvests.¹⁷⁴ To avoid the loss, those landowners at the greatest risk of restrictions were most likely to harvest their forestlands prematurely and reduce the length of their timber harvesting

¹⁷⁰ Endangered and Threatened Wildlife and Plants; Proposed Special Rule for the Conservation of the Northern Spotted Owl on Non-Federal Lands, 60 Fed. Reg. 9484, 9507–08 (Feb. 17, 1995) (to be codified at 50 C.F.R. pt. 17).

¹⁷¹ See David Wright, *Death to Tweety*, NEW REPUBLIC, July 6, 1992, at 9–10; JAMES V. DELONG, PROPERTY MATTERS: HOW PROPERTY RIGHTS ARE UNDER ASSAULT—AND WHY YOU SHOULD CARE 103 (1997); see also Christian Langpap & JunJie Wu, *Thresholds, Perverse Incentives, and Preemptive Conservation of Endangered Species*, 4 J. ASS’N ENV’T RES. ECONOMISTS S227, S227–28 (2017) (noting the preemptive destruction of golden-cheeked warbler habitat after FWS considered listing the species and resulting emergency listing).

¹⁷² David Parrish, *Environmental Dilemma*, DAILY NEWS L.A., (Mar. 19, 1995), https://infoweb-newsbank-com.eu1.proxy.openathens.net/apps/news/openurl?ctx_ver=z39.88-2004&rft_id=info%3Aid/infoweb-newsbank-com.eu1.proxy.openathens.net&svc_dat=WORLDNEWS&req_dat=61E308A7A7BF47ADAA3974047C24215A&rft_val_format=info%3Aofi/fmt%3Akev%3Amtx%3Actx&rft_dat=document_id%3Anews%252F0EF66CE25BE5CE70. Similarly, in California’s Central Valley, farmers plowed fallow fields to destroy potential habitat and prevent the growth of vegetation that could attract endangered species. Jennifer Warren, *Revised Species Protection Law Eases Farmers’ Anxiety*, L.A. TIMES, Oct. 11, 1997, at A2.

¹⁷³ Dean Lueck & Jeffrey A. Michael, *Preemptive Habitat Destruction Under the Endangered Species Act*, 46 J.L. & ECON. 27, 27 (2003).

¹⁷⁴ *Id.* at 33.

rotations.¹⁷⁵ The ultimate consequences of this behavior were potentially significant in that it resulted in a loss of several thousand acres of woodpecker habitat, a major habitat loss for a species dependent upon private land for its survival.¹⁷⁶

The second study of landowner responses to red-cockaded woodpeckers confirmed the existence of widespread preemptive habitat destruction in southeastern forests.¹⁷⁷ Specifically, this study found that “regulatory uncertainty and lack of positive economic incentives alter landowner timber harvesting behavior and hinder endangered species conservation on private lands” and that “a landowner is 25% more likely to cut forests when he or she knows or perceives that a red-cockaded woodpecker cluster is within a mile of the land than otherwise.”¹⁷⁸ Thus, this study concluded, “at least for the [woodpecker], the ESA has a strong negative effect on the habitat,” and the effect appears to be “substantial.”¹⁷⁹

The perverse incentives of the ESA unfortunately do not only affect the woodpeckers and other species dependent upon private timberland. A 2003 study published in *Conservation Biology* found that listing a species could undermine species and habitat conservation on private land.¹⁸⁰ Based on surveys of private owners of habitat for the Preble’s Meadow jumping mouse, this study found that a substantial percentage of landowners would respond to a species listing by making their land less hospitable for it, and that “the efforts of landowners who acted to help the Preble’s

¹⁷⁵ *Id.* at 51–52.

¹⁷⁶ *Id.* at 53–54.

¹⁷⁷ Daowei Zhang, *Endangered Species and Timber Harvesting: The Case of Red-Cockaded Woodpeckers*, 42 ECON. INQUIRY 150, 150 (2004).

¹⁷⁸ *Id.* at 151, 160.

¹⁷⁹ *Id.* at 162.

¹⁸⁰ Amara Brook, Michael Zint, & Raymond de Young, *Landowners’ Responses to an Endangered Species Act Listing and Implications for Encouraging Conservation*, 17 CONSERVATION BIOLOGY 1638, 1638 (2003).

were cancelled by those who sought to harm it.”¹⁸¹ This led the study’s authors to conclude that “[a]s more landowners become aware that their land contains Preble’s habitat, it is likely that the impact on the species may be negative.”¹⁸²

These studies, taken together with other research¹⁸³ and combined with the wealth of anecdotal accounts, provide powerful evidence that the ESA has the potential to discouraging species conservation on private land. Worse, they suggest that the net effect of the ESA on private land could be negative, at least for some species. Several administrations, beginning with that of President Clinton, have sought to offset these effects through various programs and initiatives designed to encourage voluntary conservation efforts and provide landowners with greater regulatory certainty.¹⁸⁴ Yet such regulatory assurances and “safe harbors” can only go so far to reduce the economic consequence of species listings for private landowners, and there is only so much flexibility in the law itself.¹⁸⁵ Such reforms may ameliorate the anti-environmental incentives created by the Act, but they do not eliminate them.¹⁸⁶ So long as privately owned habitat is subject to greater regulatory burdens than other land, there will be an incentive against owning and maintaining land with habitat characteristics.

¹⁸¹ *Id.* at 1643.

¹⁸² *Id.* at 1644.

¹⁸³ A fourth study, looking at yet another species in another part of the country, found further evidence that species listing can accelerate the rate of habitat loss, albeit not conclusively. *See* John A. List, Michael Margolis, & Daniel E. Osgood, *Is the Endangered Species Act Endangering Species?* 1–2 (Nat’l Bureau of Econ. Rsch., Working Paper No. 12777, 2006). A fifth study found that restrictions on water storage generate incentives to seek unregulated sources of water, with potentially adverse effects for listed species. *See* David A. Newburn, Nicholas Brozovic, & Mariano Mezzatesta, *Agricultural Water Security and Instream Flows for Endangered Species*, 93 AM. J. AGRIC. ECON. 1212, 1226–27 (2011).

¹⁸⁴ *See* Fischman & Ruhl, *supra* note 14, at 1348 (noting the creation of the safe harbor program in the 1990s); Wheeler & Ratliff, *supra* note 63, at 173–77 (discussing other Clinton Administration reforms).

¹⁸⁵ *See* Langpap & Wu, *supra* note 171, at S229 (concluding that the likelihood of voluntary conservation efforts, even with incentives, is dependent upon various factors including the cost of engaging in such efforts).

¹⁸⁶ *See* Richard A. Epstein, *Babbitt v. Sweet Home Chapters of Oregon: The Law and Economics of Habitat Preservation*, 5 SUP. CT. ECON. REV. 1, 5 (1997).

The threat of regulation can also affect the willingness of landowners to participate in voluntary conservation agreements.¹⁸⁷ As Michael Bean has observed, there is “[a] simple unwillingness to do the mundane management activities that could create or enhance habitat for rare species” due to fears of potential ESA regulation.¹⁸⁸ This is a problem because, “[i]n numerous cases, the absence of harmful behavior may not be enough” to conserve and recover endangered species.¹⁸⁹ A large percentage, if not an absolute majority, of listed species subsist on land where active management is necessary for their conservation.¹⁹⁰ This means effective conservation requires either the imposition of greater regulatory requirements on private landowners, or innovative ways to encourage voluntary conservation efforts on private land.

There is some evidence that the use of habitat conservation plans under Section 10 of the Act can enhance conservation efforts.¹⁹¹ HCPs allow the incidental take of species in return for the imposition of conservation measures, such as setting aside land for habitat or the adoption of other mitigation measures. The problem is that developing and participating in an HCP can be costly, time-consuming, and is not certain to produce benefits. Beginning in the 1990s, HCPs also began including assurances for landowners that regulatory constraints would not increase so long as participating landowners cooperated. A review of such plans found that species with an HCP were more likely to be classified as stable or improving than those without.¹⁹² This research also found

¹⁸⁷ Christian Langpap & JunJie Wu, *Voluntary Conservation of Endangered Species: When Does No Regulatory Assurance Mean No Conservation?*, 47 J. ENV'T ECON. & MGMT. 435, 451 (2004).

¹⁸⁸ Bean, *supra* note 168, at 415.

¹⁸⁹ Langpap & Wu, *supra* note 187, at 436.

¹⁹⁰ David S. Wilcove, *The Private Side of Conservation*, 2 FRONTIERS ECOLOGY & ENV'T 326, 326 (2004).

¹⁹¹ See Christian Langpap & Joe Kerkvliet, *Endangered Species Conservation on Private Land: Assessing the Effectiveness of Habitat Conservation Plans*, 64 J. ENV'T ECON. & MGMT. 1, 1 (2012).

¹⁹² See *id.* at 2 (“[S]pecies that have an HCP are less likely to become extinct or decline and more likely to be stable or improving.”).

that HCPs covering greater land area appeared more successful, though there was little evidence that multi-species HCPs enhanced conservation.¹⁹³ Assuming species with HCPs are representative of listed species generally, this suggests that the greater use of HCPs could improve the ESA's performance at conserving species. It is worth noting, however, that there are relatively few species deemed recovered due to the successful use of HCPs.¹⁹⁴

IV. RECOVERING THE ESA'S PROMISE

Legislative reform is necessary if the ESA is to be a more effective tool for the conservation and recovery of imperiled species. The ESA has not been meaningfully revised in over three decades, and the challenges to species conservation are only increasing. Administrative reforms have been tried, and may help on the margin, but will be insufficient to put this conservation ark back on course. This is particularly true as continued development and climate change increase the pressure on existing habitat.¹⁹⁵ Climate change will create challenges for species as changes in

¹⁹³ *Id.* (“We also find that plans covering larger areas have bigger positive impacts, but the results for the effects of plans that include more species are inconclusive.”); *see also* Reed F. Noss, Jennifer M. Cartwright, Dwayne Estes, Theo Witsell, Gregg Elliott, Daniel Adams, Matthew Albrecht, Ryan Boyles, Patrick Comer, Chriss Doffitt, Don Faber-Langendoen, JoVonn Hill, William C. Hunter, Wesley M. Knapp, Michael E. Marshall, Jason Singhurst, Christopher Tracey, Jeffrey Walck, & Alan Weakley, *Improving Species Status Assessments Under the U.S. Endangered Species Act and Implications for Multispecies Conservation Challenges Worldwide*, 35 CONSERVATION BIOLOGY 1715, 1717 (2021) (noting “the track record of multispecies HCPs and recovery plans accomplishing conservation objectives is mixed; several analyses suggest they are of lower quality than single-species HCPs”).

¹⁹⁴ One recovered species that appears to have benefited from the use of HCPs is the Black-capped Vireo. *See* Endangered and Threatened Wildlife and Plants; Removing the Black-Capped Vireo From the Federal List of Endangered and Threatened Wildlife, 83 Fed. Reg. 16228, 16230 (Apr. 16, 2018) (to be codified at 50 C.F.R. pt. 17).

¹⁹⁵ On the particular concerns climate change raises for species conservation, *see* J.B. Ruhl, *Pit Bulls Can't Fly: Adapting the Endangered Species Act to the Reality of Climate Change*, in REBUILDING THE ARK: NEW PERSPECTIVES ON ENDANGERED SPECIES ACT REFORM 184 (Jonathan H. Adler ed., 2011); *see also* Fischman et al., *supra* note 7, at 980 (“In light of climate change, rapidly disappearing habitat, and strong domestic property rights, environmental law desperately needs better tools.”).

temperature and rainfall cause habitats to shift and create needs for species migration—needs that are not yet accounted for in existing recovery plans or agency efforts.¹⁹⁶

The relative simplicity and force of the ESA’s structure make it a blunt tool for conserving the vast arrays of species in need of greater protection. As noted above, when a species is listed, this triggers an array of legal requirements, including punitive regulations that discourage greater conservation on private land. The degree of regulation of a species’ habitat is less a function of expert administrative judgment or even political calculus than it is whether a species is listed as endangered or threatened, or not listed at all. This places lots of pressure on the listing process.¹⁹⁷ It also means that specific conservation strategies may not be aligned with the needs of individual species.¹⁹⁸

When pressure mounted for ESA reform in the 1990s, the Clinton Administration responded with a series of administrative reforms designed to increase flexibility and relieve burdens on landowners.¹⁹⁹ These reforms only went so far and were quite controversial.²⁰⁰ It is unlikely that another round of administrative reforms would bear conservation fruit, however. This is particularly true insofar as such reforms seek to transform the operation of the ESA without express legislative authorization. Since the 1990s federal courts have become more suspicious of

¹⁹⁶ See Amy W. Ando, *Harnessing Economics for Effective Implementation*, 382 SCIENCE 1350, 1351 (2023) (“Conservation plans for all species must account for habitat shifts that are happening because of climate change”); Evans et al., *supra* note 46, at 8 (“Climate change almost certainly threatens more species than recovery plans indicate.”).

¹⁹⁷ See Adler, *supra* note 13, at 123; Wyman, *supra* note 8, at 507.

¹⁹⁸ See Fischman et al., *supra* note 7, at 997.

¹⁹⁹ See LAZARUS, *supra* note 8, at 157 (Interior Secretary Bruce Babbitt sought to make ESA implementation more responsive to landowner concerns. He initiated “comprehensive reforms in the administration of the Endangered Species Act, including habitat conservation plans and safe harbor plans intended to make that act more effective in its long-term ability to protect species and less onerous in its application to individual landowners.”).

²⁰⁰ See Patrick A. Parenteau, *Rearranging the Deck Chairs: Endangered Species Act Reforms in an Era of Mass Extinction*, 22 WM. & MARY ENV’T L. & POL’Y REV. 227, 284-300 (1998) (summarizing the various reforms and the legal and policy objections to those measures).

federal agency efforts to “pour new wine out of old bottles” or otherwise modernize regulatory programs absent express legislative authorization.²⁰¹ What makes the ESA a relatively short, direct, and prescriptive statute also makes it difficult to reform the Act’s implementation administratively without legislative support.

While listing a species as endangered triggers the full panoply of the ESA’s regulatory provisions, listing a species as threatened leaves the agencies with some degree of flexibility. Under Section 4(d) of the Act, the agencies are required to promulgate “protective regulations” that are deemed “necessary and advisable to provide for the conservation of such species.”²⁰² Such regulations may replicate the requirements of Section 9 for endangered species, but they need not do so. Rather, these regulations may be tailored to the particular needs of the species at issue.²⁰³ Such tailored regulations may also facilitate collaborative governance and cooperative conservation efforts in a way other parts of the ESA do not anticipate, such as by encouraging a form of best practices, as opposed to imposing rigid regulatory mandates or prohibitions.²⁰⁴ Though less stringent, alternative strategies may be more effective in at least some cases.²⁰⁵

Section 4(d) offers the FWS and NMFS a modicum of flexibility for threatened species, if they choose to take it.²⁰⁶ For most of the Act’s history, however, listing an animal species as threatened triggered the same regulations as listing it as endangered, under the so-called “blanket

²⁰¹ See, e.g., Jonathan H. Adler, *West Virginia v. EPA: Some Answers about Major Questions*, 2022 CATO SUP. CT. REV. 37, 66.

²⁰² 16 U.S.C. § 1533(d).

²⁰³ See Fischman et al., *supra* note 7, at 985.

²⁰⁴ See *id.*, at 1055.

²⁰⁵ See *id.*, at 982 (“Implemented properly, flexible protective regulations catalyze recovery better than seemingly more stringent restrictions that protect individual animals.”); see also Fischman & Ruhl, *supra* note 14, at 1349 (discussing tailored rule for *Mazama* pocket gophers, a threatened species).

²⁰⁶ See 16 U.S.C. § 1533(d) (authorizing the Secretary to issue “such regulations as he deems necessary and advisable to provide for the conservation of such species”).

rule.”²⁰⁷ This meant that threatened species were listed like endangered species by default. In 2019, the FWS revised the blanket rule to reverse the default rule, arguably restoring the Act’s operation to what had been intended by its drafters.²⁰⁸ Insofar as a threatened listing triggers less punitive and prescriptive regulations than does an endangered listing, this can provide an incentive for landowners and others to work to prevent species from being listed as endangered, or to conserve endangered species so that may be downlisted. At the time of this writing, however, the FWS is preparing to revert back to the blanket rule that treats threatened species like their more imperiled brethren.²⁰⁹

For species listed as endangered, however, the only real flexibility comes after-the-fact, through the consideration of incidental take permits under Section 10, a costly process that is far easier for larger corporations or developers to navigate than smaller landowners. In practice, this has meant that the agencies have more options when it comes to developing conservation strategies for threatened species than for endangered species. It also means that threatened species can be more “costly” for the agency to deal with, insofar as developing a species-specific protective regulation requires time and resources that the default imposition of Section 9’s take prohibition does not. Tailoring conservation and recovery strategies to the needs of each specific species may be more effective, but it may also be more demanding of agency resources.

One potentially controversial proposal to allow for more species-specific conservation strategies that avoid penalizing private landowners who own habitat is to “decouple” listing from

²⁰⁷ See Fischman et al., *supra* note 7, at 991 (“Until 2019, the FWS automatically applied all section 9 prohibitions to threatened species absent a species-specific rule.”); see also Reclassification of the American Alligator and Other Amendments, 40 Fed. Reg. 44412 (Sept. 26, 1975) (first establishing the so-called “blanket rule”).

²⁰⁸ See Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants, 84 Fed. Reg. 44753 *Aug. 27, 2019).

²⁰⁹ See Endangered and Threatened Wildlife and Plants; Regulations Pertaining to Endangered and Threatened Wildlife and Plants, 88 Fed. Reg. 40742 (June 22, 2023).

the Act’s regulatory requirements.²¹⁰ This would, among other things, enable the agencies “to develop protections tailored to the needs of each species and its circumstances.”²¹¹ Whether a species is “endangered” or “threatened” would remain, first and foremost, a scientific determination, separate from the policy choices about how a given species’ imperiled status should be addressed.

Restricting how land is used is one way to conserve a species habitat, but there are many different ways to achieve this objective. Proscriptive regulation is one tool that can be used for this purpose, albeit one that risks creating perverse incentives that work against a conservation goal. Land acquisition that then facilitates proactive management is another, as is the negotiation of contractual conservation agreements of one form or another. Although rarely relied upon by regulatory agencies, “voluntary mechanisms (such as fee simple purchase, easements, conservation banking, and subsidies) are an effective and flexible method for targeting low cost land with high-quality habitat.”²¹² Other forms of financial incentives could also improve species conservation on private land by offsetting the costs of regulation and giving conservation-minded landowners more credit for their efforts.²¹³

Government agencies have begun to create incentives for species and habitat conservation. In addition to various federal incentive programs, there are an estimated *four hundred* state

²¹⁰ See Wyman, *supra* note 8, at 516; see also Adler, *supra* note 13, at 131.

²¹¹ Wyman, *supra* note 8, at 516.

²¹² Gregory M. Parkhurst & Jason F. Shogren, *An Economic Review of Incentive Mechanisms to Protect Species on Private Lands*, in SPECIES AT RISK: USING ECONOMIC INCENTIVES TO SHELTER ENDANGERED SPECIES ON PRIVATE LANDS 121 (Jason F. Shogren ed., 2005).

²¹³ See Prasenjit Banerjee & Jason F. Shogren, *Material Interest, Moral Reputation, and Crowding Out Species Protection on Private Land*, 63 J. ENV’T ECON. & MGMT. 137 (discussing how reputation of being socially responsible can encourage conservation efforts).

incentive programs covering approximately seventy million acres of private land.²¹⁴ These programs range from straight-forward financial incentives and easement purchases to landowner education programs and the provision of technical assistance.²¹⁵ Such programs have significant promise. The experience with non-regulatory wetland conservation programs suggests that it is often possible to save more land at lower economic (and political) cost through voluntary, cooperative efforts than through coercive regulation.²¹⁶ Yet despite the proliferation of incentive programs, such approaches remain grossly underutilized, and their effectiveness compromised by the underlying incentive structure created by the Act.

The ESA's current regulatory structure provides little incentive for the exploration of such alternative conservation strategies for endangered species, in part because it presumes that the Act's regulatory strictures are always called for once a species is listed as endangered. Decoupling species listing from the imposition of regulations would shift this dynamic, particularly if agencies were required to develop and implement recovery plans and Congress were to provide the agencies with the necessary funding.²¹⁷ Financial incentives, negotiated easements and the like may often be less expensive than land acquisition, but they are not cost-free.

CONCLUSION

²¹⁴ Jason F. Shogren, *Introduction to SPECIES AT RISK*, *supra* note 212, at 10.

²¹⁵ *Id.*

²¹⁶ See Adler, *supra* note 169, at 354–61; David Sunding, *An Opening for Meaningful Reform*, REGULATION, Summer 2003, at 33.

²¹⁷ The effectiveness of reforms designed to counteract the perverse incentives for private land conservation the ESA creates may also be dependent upon funding. See Jennifer A. Smith, Kerry Brust, James Skelton, & Jeffrey R. Walters, *How Effective Is the Safe Harbor Program for the Conservation of Red-cockaded Woodpeckers?* 120 THE CONDOR 223, 232 (2018) (“The efficacy of Safe Harbor, at least for [Red-cockaded woodpeckers] appears to be dependent on adequate funding and the implementation of appropriate habitat management techniques.”),

Nearly a century ago, in “Conservation Economics,” noted conservationist Aldo Leopold recounted, “We tried to get conservation by buying land, by subsidizing desirable changes in land use, and by passing restrictive laws. The last method largely failed; the other two have produced some small samples of success.”²¹⁸ Much the same could be said for the ESA, which appears to have accomplished less for species conservation through regulatory strictures than it has through the encouragement and direct provision of conservation management. Unfortunately, it has been much easier to pursue such tools on government lands than on the private lands upon which a greater share of species rely.

The ESA is an important federal law that reflects a profound commitment to the conservation of other species. Yet after fifty years there is ample reason to question whether the law, as currently constituted, is capable of meeting its stated goal of recovering endangered and threatened species. Legislative reform to encourage greater conservation on private land, and funding to match, will be necessary if the law is to be made more effective. In the words of Stephen Jay Gould, “wildlife and habitats can only be preserved if long-term economic and social benefits will accrue to . . . people for the effort. If no honorable argument can be made along these lines, the cause is lost.”²¹⁹

²¹⁸ Aldo Leopold, *Conservation Economics*, in *THE RIVER OF THE MOTHER OF GOD AND OTHER ESSAYS* 193, 193–94 (Susan L. Flader & J. Baird Callicott eds., 1991).

²¹⁹ Stephen Jay Gould, *The Last Chance Continent*, N.Y. TIMES, Aug. 18, 1991, at 29 (book review).