

Back to the Drawing Board: A Proposal for Adopting a Listed Species Reporting System Under the Endangered Species Act

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*We cannot solve the problems that we have created with the same
thinking that created them.*

—Albert Einstein

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PROLOGUE

Certain experiences in life leave us with a lasting impression. For me, one of those experiences occurred during the summer of 2001. At the time, I was employed as a wetlands ecologist in the greater Washington, DC area and, until that day, took great pride in my work. It all began one particularly hot July afternoon while I was delineating a complicated wetland on a large, forested patch of land in Loudoun County, Virginia. As I stumbled my way up a deeply incised swale strewn with bowling-ball-sized chunks of limestone draped in thick blankets of sphagnum moss, the vicious attacks of a deer fly caused me to lose track of my pace count. I plunged my soil probe into the sandy muck between my feet and wrestled with a smudged blue-lined map in hopes of pinpointing my location.

My right hand throbbed from the constant pounding of swinging a cheap machete all day, and my vision had clouded over with a woodsman's concoction of gummy spider webs, overly curious gnats, and my own stale perspiration. Yet, when I glanced toward the ground to pick up my probe, the intermittent agony of working outside in Northern Virginia's summer heat evaporated into the sultry afternoon air. My eyes trained upon five milky-green leaves arranged like bicycle spokes around a short, pulpy stem, and I unleashed a cheerful cry that stunned the local cicada into silence: "*Small Whorled Pogonia!*"

As my initial excitement subsided, a flurry of thoughts raced through my head. The delicate flower growing at my feet was the same species that I had searched for, and occasionally found, in previous years while conducting threatened and endangered species target surveys across the Mid-Atlantic region. This three-inch tall orchid had resided on the Endangered Species Act's list of threatened and endangered species since 1982.

I knew from field conversations with local botanists and government officials that the small whorled pogonia survived in scattered pockets of Virginia, but was rather scarce in the northern regions where I predominantly worked. In fact, the species had

never before been documented in Loudoun County. So, without great expectation, I scanned the forest floor around me for additional specimens of the elusive plant. In amazement, my eyes fixed upon another tiny pogonia located only ten feet away, and then another just south of the second. All told, there were eleven of the scarce flowers peppering the hillside. I had inadvertently discovered a new colony of the threatened species in an area that it was not known to inhabit.

As I reflected over the serendipitous circumstances of the find, I began to recall the stories of coworkers who had experienced similar luck while conducting wetland delineations or other environmental field investigations. They had told me about their own discoveries of protected plants in areas that biologists did not recognize as part of the species' range and about the frustration they experienced in trying to notify the proper authorities of this new information. Over the next few weeks, I too would experience this frustration. Ironically, these feelings of frustration I shared with my colleagues stemmed from the Endangered Species Act, the very statute that was designed to conserve the species we had discovered.

The Endangered Species Act does not require anyone who sees threatened or endangered species to report the sighting. What is more, although the small whorled pogonia is currently classified as a threatened species, it is not rigorously protected because it is a plant. Because the colony that I discovered grew on private property, the landowner was free to remove the flowers at will. Also, like most consulting firms, the company that I worked for maintained a policy of exercising strict confidentiality to protect clients' interests and to shield the company and its employees from legal liability. This policy prohibited me from disclosing or even discussing the discovery with anyone besides my coworkers. But I was surprised to learn that even if I could have reported the sighting without fear of being fired or sued, there was no mechanism or procedure to file such a report with the United States Fish & Wildlife Service (FWS), the federal agency charged with nationwide protection of threatened and endangered species such as the pogonia.

After leaving my job at the end of the summer, I attempted to notify the Fish & Wildlife Service of my discovery on that hot day in July. Without betraying my client's confidentiality, I wanted to pass along the general information that the small whorled pogonia lived in Loudoun County so the Service could

update its species range information and possibly account for the plant during future activities in the area. The agency representative with whom I spoke said that she appreciated my concern, but explained that the agency had no process for filing such a report.

Three years later, the small whorled pogonia continues to be classified as a threatened plant under the Endangered Species Act. Statistics compiled since the time of my discovery indicate that the delicate orchid has begun to recover in portions of its range. In Loudoun County, however, its status remains unknown; the Fish & Wildlife Service still does not recognize the pogonia as occurring there.

INTRODUCTION

As the discovery of a small whorled pogonia colony on a rural mountainside in Virginia illustrates, the current understanding of the distribution of rare plant and wildlife species and their habitats is far from perfect. Biological discoveries involving threatened and endangered species, like that of the pogonia, are neither new nor uncommon.¹ In fact, the discovery of an innominate species, the snail darter, became the fountainhead for Endangered Species Act (“ESA” or “the Act”) jurisprudence as it currently stands.²

Given the overwhelming complexity of biological diversity, it is little wonder that such discoveries – both of new, previously unknown species and of new populations of previously identified species – occur on a relatively frequent basis.³ The effects of this complexity on the scientific community’s understanding of the natural world are compounded when rare and at-risk species are thrown into the mix. The scarcity of these plants and animals renders them difficult to document and even harder to study in

1. See CHARLES C. MANN and MARK L. PLUMMER, *NOAH’S CHOICE: THE FUTURE OF ENDANGERED SPECIES* 13 (1995) [hereinafter *NOAH’S CHOICE*] (detailing several recent discoveries of populations of species believed to be extinct and noting that “[s]cientific journals are full of such stories”).

2. See *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 158-59 (1978) (hereinafter *TVA v. Hill*); Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (2003); See discussion *infra* Part I.B.1.a.

3. See, e.g., Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn’t Always Better Policy*, 75 WASH. U. L.Q. 1029, 1126 (1997) (detailing the proposed classification of the California three-legged frog, which FWS originally believed to exist in dangerously low numbers but later reclassified as threatened upon finding new populations of the frog); See also discussion *infra* Part I.B.1.

any sort of comprehensive detail.⁴ As a result, it is hardly surprising that new information concerning threatened and endangered species continually emerges.⁵ Nor is it surprising that this type of new information can alter the scientific understanding of this nation's living resources.

What is surprising is that the United States Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (collectively "the Services") – the two federal entities charged with implementing the Endangered Species Act to ensure conservation of listed species⁶ – fail to provide any reliable mechanism to account for new listed species-related information as it emerges.⁷ Consequently, valuable statistical and biological information about threatened and endangered species often goes unreported, unconsidered, and unused. That FWS and NMFS allow this otherwise-difficult-to-collect information to slip by unaccounted for is extraordinary in light of its potential utility for implementing the ESA. At a minimum, the Services could apply this information to supplement their collective understanding of

4. See generally Malcolm L. Hunter, Jr., *Coping With Ignorance: The Coarse-Filter Method for Maintaining Biodiversity*, in *BALANCING ON THE BRINK OF EXTINCTION: THE ENDANGERED SPECIES ACT AND LESSONS FOR THE FUTURE* 266, 266-77 (Kathryn A. Kohm ed., 1991) [hereinafter *BALANCING ON THE BRINK*] (discussing various impediments to attaining complete knowledge of listed species and proposing an ecosystem-based approach for overcoming such impediments).

5. Telephone Interview with Martin Miller, Chief, United States Fish & Wildlife Service – Region 5, Division of Threatened and Endangered Species (Apr. 27, 2004) (noting that discovery of new information concerning listed species "happens pretty frequently" because the Services generally lack site-specific information for many species, especially during the first few years immediately following a species' listing); Telephone Interview with René Hypes, Virginia Division of Natural Heritage, Department of Conservation & Recreation (Apr. 27, 2004) (stating that discoveries of new populations of listed species occur "quite frequently").

6. Under the ESA, Congress instructed the Department of Interior (DOI) and the Department of Commerce (DOC) to carry out the statute's provisions; DOI possesses supervisory responsibility over all terrestrial species, while DOC possesses supervisory authority over marine species and anadromous fish. 16 U.S.C. §§ 1532(15), 1533 (2003). DOI and DOC, in turn, delegated their respective responsibilities to FWS and NMFS. MICHAEL J. BEAN and MELANIE J. ROWLAND, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 204 (3d ed. 1997); see 16 U.S.C. §§ 1533-1539 (2003) (assigning various conservation duties to the "Secretary").

7. Telephone Interview with Martin Miller, Chief, United States Fish & Wildlife Service – Region 5, Division of Threatened and Endangered Species (Apr. 27, 2004) (acknowledging the absence of an agency-run system to continually solicit and generate listed species information from independent sources). Notably, some local FWS field offices have established GIS remote data systems to compile species data, but these systems are scattered, imprecise, and of limited use for conservation because their database is incomplete. *Id.*

a listed species' habitat, range, and population abundance.⁸ Availing themselves of this data would enable them to protect previously unknown species populations that occupy previously unrecognized habitat domains. Conversely, by needlessly squandering this data, the Services may inadvertently elevate the risk of imperiling unknown populations of listed species and the habitats upon which they depend.

Given that the latter of these options contravenes the express purposes and provisions of the ESA, which Congress enacted to combat increscent trends in native species extinction, choosing among the two options should be self-evident.⁹ In the eyes of the Services, however, it seems the choice is not so clear. Perhaps this apparent lack of vision is, in part at least, responsible for the pervading impression that the ESA – the statute that FWS has dubbed “the pit bull of environmental laws”¹⁰ – has not proven particularly successful at fostering listed species recovery.¹¹ What renders the agencies' continued disregard of such useful species information so potentially harmful to implementation of the ESA is that approximately 50% of the threatened and endangered species in the United States occupy a mere 7% of the country's land area.¹² This means that the habitats of listed species overlap substantially.¹³

On its face, this overlap might seem to help unknown listed species populations by bestowing on them the benefits of efforts directed at conserving known populations of other listed species sharing the same habitat. In reality, however, the distinct physiology of each species usually means that protection of one spe-

8. See discussion *infra* Part III.

9. See 16 U.S.C. § 1531 (2003) (acknowledging the increasing species extinctions and articulating a policy to stem them through conservation); *TVA v. Hill*, 437 U.S. at 184 (recognizing the plain intent of Congress in legislating the ESA as an effort “to halt and reverse the trend toward species extinction, whatever the cost”).

10. Michael J. Bean, *The Endangered Species Act and Private Land: Four Lessons Learned from the Past Quarter Century*, 28 ENVTL. L. REP. 10701, 10701 (1998) (citing Steven P. Quarles, *The Pit Bull Goes to School*, ENVTL. F., Sept./Oct. 1998, at 55).

11. *Id.* at 10710 (noting the “very low percentage of listed species judged by the FWS to be improving”); Jason M. Patlis, *Recovery, Conservation, and Survival Under the Endangered Species Act: Recovering Species, Conserving Resources, and Saving the Law*, 17 PUB. LAND & RESOURCES L. REV. 55, 57 (1996) (specifying that, while 33% of listed species are considered stabilized, only 8% are considered to be improving).

12. Stephen M. Meyer, *The Economic Impact of the Endangered Species Act on the Housing and Real Estate Markets*, 6 N.Y.U. ENVTL. L.J. 450, 478 (1998).

13. *Id.*

cies does not necessarily contribute to protection of another—particularly when the supposed latent beneficiary's presence is unknown.¹⁴ Thus, a doctrinal paradox may arise in which an agency trying to fulfill its ESA duties by employing measures to conserve one species unwittingly compromises unknown populations of another listed species.

Although the Endangered Species Act embodies the overarching purpose of conserving all listed species and their habitats, the statute simply does not contemplate the difficulty of mitigating harm to unknown species populations.¹⁵ What is more, as the sporadic success of species recovery under the ESA indicates, reliance on the same tired approaches and tools currently in use for species conservation is unlikely to rectify the situation.¹⁶ The only logical conclusion is that the implementing agencies desperately need new creative tools to achieve the ESA's purposes.¹⁷ They need to develop programs capable of realigning the statute with its ambitious goals. A binary threatened and endangered species reporting system would provide this capability.

Instituting a binary listed species reporting system – consisting of a mandatory reporting requirement and a voluntary reporting mechanism – could benefit both known and unknown populations of protected species by efficiently making new information available for use in their conservation. Thus, with the intention of affording every individual member of threatened and endangered species at least an occasion to receive the Endangered Species Act's protections, this article proposes a reporting system for generating biological information about listed species. Part I lays the groundwork for analyzing this issue by introducing the proposed reporting system and explaining its function under the ESA. Part II briefly traces the statutory development of the ESA to illustrate the evolution of its conservation goals. Part III details three of the Act's prominent mandatory provisions and evaluates how the proposed system could benefit each. Finally, Part IV discusses the statutory and constitutional authorizations

14. Hal Salwasser, *In Search of an Ecosystem Approach to Endangered Species Conservation*, in *BALANCING ON THE BRINK*, *supra* note 4, at 247, 253-54.

15. 16 U.S.C. § 1531(b) (2003); *see generally* 16 U.S.C. §§ 1531-1544 (2003) (providing for species conservation without comprehending procedures to deal with potential unknowns); *see also infra* text accompanying notes 361-63, 374 (explaining that ESA exemptions, such as the incidental take permit, do not apply when a previously-unknown species population is accidentally harmed).

16. Bean, *supra* note 10 at 10710.

17. *Id.*

for implementing a reporting system under the existing framework of the Endangered Species Act and concludes that creating such a system falls well within the powers of the Services.

I.

THE PROPOSED REPORTING SYSTEM: ITS STRUCTURE AND PURPOSE

Reporting systems are not a new concept, even in the realm of protection of at-risk species. For years, various species reporting programs have been in place that allow public and private groups alike to compile information and track trends in the natural world.¹⁸ The United States Department of Agriculture's PLANTS database is one such program. The Department of Agriculture established the database as a government-sponsored, voluntary reporting system to monitor the spread of noxious weeds and invasive non-native plant species.¹⁹ The PLANTS database, which the Harvard University Kennedy School of Government recently selected as one of the "fifty most innovative

18. See e.g., Natural Heritage Network and NatureServe (describing these programs' jurisdiction-specific branch offices geared toward conserving and inventorying rare and listed species and allowing volunteers to submit information about species sightings), at <http://www.natureserve.org>; Telephone Interview with René Hypes, Virginia Division of Natural Heritage, Department of Conservation & Recreation (Apr. 27, 2004) (discussing the use of species reporting for augmenting the Natural Heritage Program's knowledge of rare and listed species).

19. United States Dept. of Agriculture, Natural Resources Conservation Service, *The PLANTS Database* (2004), at <http://plants.usda.gov>. Another program that the Department of Interior proposed, but never implemented, was the National Biological Survey (NBS). See NATIONAL RESEARCH COUNCIL, *A BIOLOGICAL SURVEY FOR THE NATION* (1993). NBS would have functioned as a federal agency for collecting and disseminating information about each identified species in the United States while striving to insure species protection and regulatory certainty. *Id.* at 3-5. Unfortunately, Congress all but abandoned this program before it had an opportunity to accomplish any of its worthwhile goals. See J. Gordon Edwards, Ph.D., *Unfond Memories of Bruce Babbitt*, ENV'T NEWS (Apr. 1, 2001), available at <http://www.heartland.org/Article.cfm?artId=1158> (noting that Congress relegated the program to a minimal role under the authority of the U.S. Geological Survey and quoting the legislature's instructions that "[n]one of the [appropriated] funds may be used to conduct surveys on private property or administer volunteer programs or be used for any activity that was not previously authorized").

federal programs,"²⁰ allows any party to submit information about the location of plant species in the United States.²¹

With this constantly accruing information, the database allows USDA to maintain an updated record of the range and biological trends of various species.²² This information is available for use by the general public and allows any interested party to receive timely data about invasive species that might impact land use activities.²³ While the PLANTS database allows users to submit information about the location of threatened or endangered plant species, the program primarily focuses on potentially destructive weeds and invasive plants.²⁴ And any users who submit species information do so on a purely voluntary basis.²⁵ As a result, the database cannot serve as a comprehensive tool for the conservation of listed species; that simply is not its purpose. The proposed reporting system, on the other hand, would concentrate entirely on listed species and impose a duty on certain parties to report sightings. Because a reporting system would be an unfamiliar addition to the Endangered Species Act, an in-depth profile of the proposed system and the bases for incorporating it under the statute is appropriate.

A. *The Structure of the Proposed ESA Reporting System*

There are numerous ways for creating a reporting system that is useful for compiling information. The reporting system proposed here is designed to maximize the volume of reliable listed species information submitted and minimize the accompanying burden that implementing the system would thrust on the Services and, of equal importance, the regulated community. To achieve these goals, the proposed reporting system employs a bi-

20. See Ash Institute for Democratic Governance and Innovation, Kennedy School of Government, Harvard University, *Awards Recipients* (Apr. 13, 2004) (listing the USDA's PLANTS database as a semifinalist in the school's annual competition), available at <http://www.innovations.harvard.edu>.

21. United States Dept. of Agriculture, Natural Resources Conservation Service, *More Information About the PLANTS Distribution Update Module* (2004), available at http://plants.nrcs.usda.gov/cgi_bin/topics.cgi?earl=/DistributionUpdate.html. Under the program, when information about species or species locations, along with supporting evidence, are submitted to USDA, agency scientists review the submission to ensure validity and then incorporate the species information into the database. *Id.*

22. *Id.*

23. *Id.*

24. See *id.*

25. *Id.*

nary approach consisting of a mandatory reporting requirement and a voluntary reporting mechanism.

1. The Reporting Requirement

Under the Endangered Species Act, the reporting requirement (RR) would function as a regulatory device that commands affected environmental professionals (EPs) to contact the appropriate regulatory entity – either FWS or NMFS at the federal level, or the appropriate agency at the state level – to disclose any sightings of threatened or endangered species.²⁶ The RR would apply to every appropriately trained environmental professional, including those in the public, private, and governmental sectors, with the knowledge and experience to conduct routine threatened and endangered species surveys.²⁷ The requirement would impose an affirmative duty on these parties, while they are serving in their professional capacity, to notify the appropriate agency of any sightings of listed species occurring on a work site and submit any available corroborating evidence to support the report. Despite this duty to report, however, the RR could not be interpreted as granting permission for any party to enter private property without the owner's consent.²⁸ Likewise, any reports submitted under the program should not be disclosed to the public under the Freedom of Information Act.²⁹

The RR would not compel affected parties to take proactive or self-initiated measures to scavenge a site for a listed species. Such a mandate would be overly intrusive because an environmental professional's presence on the site typically corresponds to another purpose, unrelated to species surveys, such as a wet-

26. Thus, to affected parties, the reporting requirement would be functionally analogous to the Services' reporting mandate for listed species takings that occur under an incidental take permit, except that the proposed RR would apply prospectively, hopefully before any harm has come to the species. General Permit Procedures, 50 C.F.R. §§ 13.45, 18.27(b)(3), 18.27(e)(3) (2004); see *infra* notes 29-301.

27. See The Air Force Center for Environmental Excellence, Resource Conservation Division, *Statement of Work Template for Threatened and Endangered Species Mapping* (2003) (setting forth the procedures and requirements for listed species surveys on Air Force lands), available at <https://www.denix.osd.mil/denix/Public/News/SOW/NCR/note17.html>. The Services provide a program to certify any qualified parties to conduct official threatened and endangered species target surveys. See Services Programs, at <http://endangered.fws.gov>.

28. See *infra* note 90.

29. 5 U.S.C. §§ 551-552 (2000). Arguably, such reports could be protected from disclosure because they would not be official policy and would only serve as deliberative material for the agencies to consider in making decisions about future activities. See *id.* § 552(b)(5).

land delineation or CERCLA investigation. But the proposed reporting requirement should specify that EPs must apply their professional expertise with due diligence. As part of this due diligence, when environmental professionals report any listed species sightings, they would be required to attest to their belief in the accuracy of the report. Proof of submitting a spurious report would subject the attester to legal liability, as would proof of any deliberate failure to report a species sighting that in any way contributes to an onsite taking of that species. Because the reporting requirement would apply only to the designated EPs when they are serving in a professional capacity, they would have no duty to report sightings that occur outside the scope of their employment. However, even when engaged in non-professional pursuits, EPs could still report sightings of threatened and endangered species voluntarily. Such reports could be submitted under the second part of the proposed reporting system—the reporting mechanism.

2. The Reporting Mechanism

The proposed reporting mechanism (RM) would be procedurally similar to the reporting requirement; however, the reporting mechanism would function as a voluntary administrative device available to any interested party for relating information about suspected sightings of threatened or endangered species to the Services.³⁰ Unlike the RR, which would impose a mandatory reporting duty on certain EPs, the proposed RM provides a completely elective means for interested parties to submit relevant information intended to assist the conservation of listed species.³¹ Also unlike the RR, which would compel the wholesale participation of every designated environmental professional, the proposed RM does not contemplate one-hundred percent participation from every party who observes a listed species.

Anticipating incomplete participation under the RM is logical due to the device's voluntary nature, the general public's lack of species identification expertise, and the realization that some landowners might consider the identification of listed species populations on their property as contrary to their personal inter-

30. Thus, the reporting mechanism would be the federal equivalent of devices that several states currently operate to gather information about listed species within their borders. See *infra* note 469.

31. See discussion *supra* Part I.A.1 (discussing the action-forcing nature of the proposed reporting requirement on designated EPs).

ests. Yet, even without perfect – or even substantial – participation, the RM could still prove worthwhile because of its ability to produce new and better data about listed species populations and ranges. On the other hand, this is also one of the inherent shortcomings of the RM. Because it would serve as a vehicle for any party to submit information about listed species, deceitful persons, for various reasons, could use the device to submit misinformation.³² Similar to the RR, then, the proposed reporting mechanism would require parties who voluntarily notify the Services of listed species sightings to attest, subject to legal liability, to the attestor's belief in the veracity of the report.³³

Due to the potential problems arising from the accessible nature of the proposed reporting mechanism, several limitations would be appropriate to curtail misuse. First, because an unlimited and relatively unmonitored assortment of parties with widely varying biological training might choose to report species sighting, the Services would not rely entirely on the credibility of reports filed under the RM. Agency biologists could conduct routine investigations of RM-based reports.³⁴ Second, like the RR, the reporting mechanism would specify that its provisions cannot be interpreted as granting any party access to private property against the owner's wishes.³⁵ Finally, because it is an elective program, a party's decision not to submit information under the RM should not provide a basis for citizen suit enforcement of the ESA.³⁶

32. See Lynn A. Greenwalt, *The Power and Potential of the Act*, in *BALANCING ON THE BRINK*, *supra* note 4, at 31, 36 (articulating several inappropriate uses of the ESA, including "find[ing]" protected species with the sole intent of impeding development).

33. See discussion *supra* Part I.A.1 (setting forth the attesting requirement for the RR).

34. See *infra* text accompanying note 77.

35. See *infra* note 90. Likewise, any reports submitted under the program could not be disclosed to the public under the Freedom of Information Act. 5 U.S.C. §§551-552 (2000). This is because the reports would not be official policy and would only serve as deliberative material for the agencies to consider in making decisions about future activities. See *id.* § 552(b)(5).

36. See 16 U.S.C. § 1540(g) (2003) (establishing the citizen suit provision under the Endangered Species Act to allow such suits "to enjoin any person . . . who is alleged to be in violation of any provision of [the ESA] or regulation issued under the authority thereof").

3. Integrating the Reporting Requirement and the Reporting Mechanism

Collectively, the reporting requirement and the reporting mechanism would embody a binary threatened and endangered species reporting system (RS). While the RR and the RM would remain separate apparatuses, they would operate together to generate data and other useful information about listed species and their habitats. This new data and information could prove beneficial to all interests under the ESA—listed species, the Services and other government entities, the public, and private landowners, alike.³⁷ FWS and NMFS could promulgate the reporting system as an agency regulation and institute the system as a conservation program under the Endangered Species Act.³⁸

While the primary thrust of the RS involves the acquisition of new and enhanced information about listed species and their habitats to advance the ESA's conservation goals, it is important to understand that neither of the reporting system's two constituent devices, the RR and the RM, would require any party to prove that listed species do not inhabit a property. Little benefit, but extreme hardship, would stem from imposing a duty on affected parties to engage in the futile process of trying to prove a negative. The RS, through the reporting requirement and reporting mechanism, would function only as a supplementary tool for species and habitat conservation. The reporting system would not supplant existing conservation programs; it would complement them. In addition, the system could benefit the ESA by reconciling the oftentimes conflicting needs of protected species, private land owners and developers, and government entities, thereby fostering innovative partnerships between the regulated parties and the government regulators.³⁹

37. See generally 16 U.S.C. §§ 1531–1544 (2003) (setting forth tacit contemplation of each of these interests within the various ESA provisions); see also *infra* text accompanying notes 375–78.

38. See discussion *infra* Part III.B–C (describing the broad discretion that Congress, through the ESA, conferred on the implementing agencies to use their expertise in developing regulatory programs to effectuate the Act); see also discussion *infra* Part III.B (describing the ESA's mandate on the implementing agencies to develop conservation programs for protecting listed species and the species' habitat).

39. Thus, the reporting system would provide similar benefits as those created under habitat conservation plans, but the system would have an advantage over the plans by providing up-front species conservation measures, rather than reacting to impacts after they occur. See Matthew J. Rizzo, *The Endangered Species Act and*

B. *Why Establish a Listed Species Reporting System Under the ESA?*

Many reasons support adopting a reporting system under the ESA. As is often the case, the simplest reason is the best: the ESA needs such a system. Although the Act has endured for just over thirty years without a listed species reporting system, the stunted achievements attained under the statute during that time show that there is room for improvement.⁴⁰ In fact, improving the execution of the ESA is necessary if the statute is to achieve more than temporarily delaying the disappearance of those species flirting with extinction.⁴¹ Improvement is necessary if there is any hope of insuring that all species remain extant, rather than becoming extinct. The proposed reporting system is one method for bringing this about.

1. *The Proposed Reporting System Can Help Address Biological Complexity*

As it currently stands, successful implementation of the ESA is confounded by unknowns. This is ironic considering Congress created the statute to address the unknown.⁴² Nonetheless, the ESA's purpose of protecting species that typically are scarce and elusive virtually guarantees that the final outcome of measures taken under the Act will be shrouded in uncertainty.⁴³ This contributes to the difficulty of administering the ESA and of attaining definitive knowledge about rare species. However, even with the usual uncertainty associated with at-risk species, discovery of new information about them is recurrent.⁴⁴ In general, two types of discoveries produce information about rare species: 1) discovery of a new, previously unknown species; and 2) discovery of a

Federal Agency Inaction, 13 ST. LOUIS U. PUB. L. REV. 855, 868 (1994); *see also infra* text accompanying notes 373-74.

40. Congressman John D. Dingell, *The Endangered Species Act: Legislative Perspectives on a Living Law*, in *BALANCING ON THE BRINK*, *supra* note 4, at 25, 30.

41. *Id.* at 29.

42. *See* H.R. REP. NO. 93-412, at 4-5 (1973) (“[At-risk species] are keys to puzzles which we cannot solve, and may provide answers to questions which we have not yet learned to ask . . . The institutionalization of that caution lies at the heart of [the ESA]”).

43. *See* 16 U.S.C. § 1532(6), (20) (2003) (defining “endangered species” as a “species which is in danger of extinction throughout all or a significant portion of its range” and “threatened species” as a “species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range”).

44. *See infra* notes 73-74.

new, undocumented population or habitat regime of a previously listed species.⁴⁵ The circumstances surrounding the seminal ESA case, *Tennessee Valley Authority (TVA) v. Hill*, involved both types of discoveries and inadvertently highlighted the difficulty of confronting biological unknowns under the statute.

a. TVA v. Hill: The Mother of All ESA Discoveries

In 1973, just four months before Congress enacted the ESA, an ichthyologist exploring the waterways of Tennessee discovered the snail darter—a three-inch-long, previously unknown species of perch.⁴⁶ In short time, the Secretary of the Interior listed the darter as an endangered species, and the tiny fish that nobody had ever seen before was propelled to monumental notoriety.⁴⁷ The snail darter's overnight fame originated from several biological studies, in which scientists inferred that the species' entire habitat and range were confined to a short segment of the Little Tennessee River—a segment that laid directly in the path of the Tennessee Valley Authority's nearly-completed, \$110-million-dollar Tellico Dam project.⁴⁸ The scientists maintained that, by completing construction and operating the dam, the Tennessee Valley Authority would inundate the darter's only known habitat and quickly drive the species into extinction.⁴⁹

The peril of the TVA dam looming over the endangered darter, together with the fish's finite range, presented the United States Supreme Court with its first opportunity to consider the application and strength of the newly-enacted ESA.⁵⁰ In *TVA v. Hill*, the Court's six-Justice majority wasted little time on policy discussion or metaphysical debate.⁵¹ The Court recognized that Congress, through the ESA, had spoken clearly and affirmatively; quite simply, the statute required "all federal agencies 'to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence' of an endangered spe-

45. See sources cited *infra* notes 73-74.

46. *TVA v. Hill*, 437 U.S. at 158-59.

47. *Id.* at 161 (citing 50 C.F.R. § 17.11(i) (1976)).

48. *Id.* at 156-159, 161; NOAH'S CHOICE, *supra* note 1, at 148.

49. NOAH'S CHOICE, *supra* note 1, at 148.

50. See RUTH S. MUSGRAVE ET AL., FEDERAL WILDLIFE LAWS HANDBOOK WITH RELATED LAWS 24 (1998) (describing *Hill* as "[t]he seminal case in support of the language and goals of the ESA"); see also Greenwalt, *supra* note 32, at 32 (explaining that "[t]he real strength of the act, however, did not become evident until" the Supreme Court adjudicated *Hill*).

51. See *TVA v. Hill*, 437 U.S. at 153.

cies.”⁵² Finding that “Congress intended endangered species to be afforded the highest of priorities,” the Supreme Court affirmed an injunction issued on the Tellico Dam project and set the benchmark for future ESA regulation and litigation.⁵³

While the salience of this case to the protection of species under the ESA cannot be denied, *TVA v. Hill* also had an unanticipated negative effect on public perception by highlighting uncertainty in the scientific bases used to implement the statute. In an ironic twist of fate, approximately one year after the Supreme Court handed down the *TVA v. Hill* decision, another significant discovery related to the snail darter occurred. In 1980, the same scientist who had originally discovered the snail darter identified four additional populations of the species some sixty miles away from the former Tellico Dam construction site.⁵⁴ Less than four years later, having identified a total of nine separate populations of the species, the United States Fish and Wildlife Service downgraded the darter’s ESA classification from “endangered” to “threatened.”⁵⁵ Thus, not only did the discovery of a new species precipitate the case, but also the later discovery of new populations of the species brought about its closure.

By featuring *TVA v. Hill*’s two discovery-related issues, this article in no way implies any dissidence with either the Court’s decision or FWS’s actions. Rather, these examples are presented only to highlight the prominence of at-risk species discoveries, which have regularly occurred since the dawn of the ESA’s codification. One of the primary causes of these frequent biological discoveries is the sheer complexity of the natural world.

b. *The Dilemma of Biological Complexity*

Given the epic complexity of biodiversity, it is little wonder that rare species discoveries – both of new species and of new populations of known species – occur on a relatively frequent

52. *Id.* at 173 (quoting Endangered Species Act of 1973, 16 U.S.C. § 1536 (1976)) (emphasis omitted).

53. *Id.* at 174, 194-95.

54. J.B. Ruhl, *Section 7(a)(1) of the “New” Endangered Species Act: Rediscovering and Redefining the Untapped Power of Federal Agencies’ Duty to Conserve Species*, 25 ENVTL. L. 1107, 1127 n.93 (1995) (citing NOAH’S CHOICE, *supra* note 1, at 173).

55. 49 Fed. Reg. 27,510 (July 5, 1984) (to be codified at 50 C.F.R. pt. 17); NOAH’S CHOICE, *supra* note 1, at 173.

basis.⁵⁶ Scientists surmise that as many as 98 million species remain undiscovered worldwide, while only an estimated 1.4 million different species have already been documented.⁵⁷ Of the identified species, approximately one million are animals and the remaining 400,000 are plants.⁵⁸ With such a boundless multitude of plant and animal species, the expectation that biologists and the Services should completely understand each species is more than ambitious; it is a fantasy. Even with the unparalleled research abilities and resources of the scientific community in the United States, this is as true here as it is in more remote areas of the world.⁵⁹

Biologists estimate that more than 200,000 different plant and animal species inhabit the United States.⁶⁰ Of these species, some 1,263 currently qualify as threatened or endangered under the ESA.⁶¹ The Services typically include species on the threatened or endangered species list for one of two reasons. Some listed species historically thrived in substantial numbers, but now face extinction due to natural or manmade impacts to their survival.⁶² Others are simply scarce species that have always survived in naturally limited numbers or in confined areas.⁶³ Regardless of whether it is naturally occurring or impact-related, the rarity of these plant and animal species renders them difficult to document and even harder to study in any sort of

56. See, e.g., Doremus, *supra* note 3, at 1126 (detailing the proposed endangered classification of the California three-legged frog, which FWS originally believed to exist in dangerously low numbers, but then reclassified as threatened after identifying new populations of the frog).

57. EDWARD O. WILSON, *THE DIVERSITY OF LIFE* 132-33 (1992).

58. *Id.* at 134-36.

59. See NATIONAL RESEARCH COUNCIL, *supra* note 19, at 65 (describing the United States science community as possessing "unparalleled taxonomic research capabilities in its public and private museums, botanical gardens, universities, and government agencies").

60. Robinson Shaw, *U.S. Biodiversity in Jeopardy, Study Shows*, ENVIRONMENTAL NEWS NETWORK (Mar. 17, 2000), available at <http://www.enn.com/arch.html?id=10747>.

61. United States Fish & Wildlife Service, *Threatened and Endangered Species System (TESS): Summary of Listed Species and Recovery Plans as of 04/03/2004*, available at http://ecos.fws.gov/tess_public/TESSBoxscore (last modified Apr. 4, 2004); See also *supra* note 42, at 10 (providing the ESA's definitions for threatened species and for endangered species).

62. See Reed F. Noss, *From Endangered Species to Biodiversity*, in *BALANCING ON THE BRINK*, *supra* note 4, at 227, 235-36 (explaining the various causes of species reaching the state of needing protection).

63. *Id.*

comprehensive detail.⁶⁴ As a result, shielding listed species from extinction is no easy task, and conserving them at times may seem Sisyphean.

As difficult as the job may appear, a reporting system could help to address the massive task of conserving threatened and endangered species. By generating and compiling data about at-risk plants and animals, a reporting system could help to eliminate some of the unknowns typically associated with their protection and conservation. This could allow the Services to harness the complexities of this country's biological resources and apply new information to the benefit of those species that most need the help.

2. A Reporting System Can Bring Success to the ESA

Perhaps at least in part because of the overwhelming amount of information (much of which remains undiscovered) required to conserve listed species, the Endangered Species Act has not proved extremely successful at rehabilitating species.⁶⁵ This is quite troubling in light of Congress' purpose of creating the ESA "to halt and reverse the trend toward species extinction, whatever the cost."⁶⁶ Because the methods used over the last thirty years under the ESA have failed to demonstrate an ability for attaining listed species conservation, a change is in order. The implementing agencies, FWS and NMFS, should reform and adapt their policies to bring about this change and vitalize the now-languishing ESA. A reporting system – because of its ability to generate better and more complete species information, provide for additional species and habitat protection, and instill participation of all interested parties in conservation activities – is one tool capable of breathing life into the ESA.

The capacity to optimize administration of the statute is probably the greatest benefit that a reporting system could offer the ESA. FWS and NMFS bear a colossal burden in trying to enforce the ESA's provisions. The unknowns associated with the ESA amplify this burden because the Services cannot invoke the

64. See generally Hunter, *supra* note 4, at 266, 266-67 (discussing various impediments to gaining complete knowledge of listed species and proposing an ecosystem-based approach to overcome such impediments).

65. See NATIONAL RESEARCH COUNCIL, *supra* note 19, at 27 (describing the wide array of missing information that must be gathered to conserve the nation's living resources); see also *supra* note 11.

66. *TVA v. Hill*, 437 U.S. at 184.

desired statutory compliance with any real precision when they are uncertain of a listed species' precise range, the specific locations of its populations, and the extent of its habitat.⁶⁷ Without being able to pinpoint a species' range, population locations, and habitat with verifiable accuracy, the Services cannot afford that species the protections which Congress contemplated in the ESA.⁶⁸ Uncertainty translates into danger for threatened and endangered species because the ESA provides no authority to regulate actions on lands that lack, or even appear to lack, listed species.⁶⁹ As a result, incomplete knowledge can result in the unwitting destruction of at-risk species populations and their habitats.

A reporting system could address this problem by generating new information about listed species and their habitats, thus enabling the Services to protect both.⁷⁰ Because the ESA establishes a framework for species protection that is grounded in science, effective administration of the statute requires routinely updated information about listed species. One of the fundamental principles underlying scientific knowledge is the recognition that it is never complete; science is an ever-evolving process.⁷¹ Often the most basic step in this evolution is the collection of data and information upon which to evaluate the scientific issues of concern.⁷² Yet, initial data gathering must not be viewed as conclusive. In the scientific world, the most reliable information generally is the newest information; the ESA, as it is a science-dependant statute, does not escape this precept.⁷³ In fact, new scientific discoveries pertaining to listed species commonly

67. See NATIONAL RESEARCH COUNCIL, *supra* note 19, at 27 (explaining that “[s]uch a lack of information is critical because we continually make important, and often irreversible, decisions concerning these [living] resources”).

68. See 16 U.S.C. § 1531(b) (explaining the congressional purpose of providing a means to conserve the ecosystems upon which listed species depend and a program for conserving the species themselves).

69. See *infra* text accompanying notes 373-78.

70. NATIONAL RESEARCH COUNCIL, *supra* note 19, at 27.

71. See *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 597 (1993) (explaining that “scientific conclusions are subject to perpetual revision”); Doremus, *supra* note 3, at 1058.

72. Doremus, *supra* note 3, at 1059.

73. *Id.* at 1081. The history of the ESA's implementation is loaded with instances where new species information emerged and forever changed what biologists believed they knew about a listed species. In fact, on more than one occasion, the Services believed a species to be extinct, only to learn years later that the species had miraculously survived—unnoticed, but also un-extinct. NOAH'S CHOICE, *supra* note 1, at 13.

change the manner in which the Services address conservation of those species to improve their chances of survival.⁷⁴ Without the information garnered from these new discoveries, it would have been impossible for the Services to apply their resources to conserve these species as the ESA directs. A reporting system could generate this type of information on a continuous basis, produce more frequent discoveries, and thus help FWS and NMFS conserve listed species.

The use of this type of information originating from outside sources would be nothing new for the Services. In fact, FWS and NMFS have taken a position, on paper at least, that embraces the use of biological input from outside sources. In 1994, the Services issued an interagency policy setting forth Information Standards Guidelines.⁷⁵ Through this policy, FWS and NMFS articulated parameters to “provide criteria, establish procedures, and provide guidance to ensure that decisions made by the Services under [the ESA] represent the best scientific and commercial data available.”⁷⁶ The Services clarified that they may, and in some case must, utilize various external sources when fulfilling their decision-making duties under the ESA:

The Services receive and use information on the biology, ecology, distribution, abundance, status, and trends of species from a wide variety of sources as part of their responsibility to implement the Act. Some of this information is anecdotal, some of it is oral, and some of it is found in written documents. These documents include status surveys, biological assessments, and other unpublished material from [State and Tribal agencies], consulting firms, contractors, and individuals associated with professional organizations and higher education institutions. . . . The reliability of the information contained in these sources can be as variable as the sources themselves. As part of their routine activities Service biologists are required to gather, review, and evaluate information from these sources prior to undertaking listing, recovery, consultation, and permitting actions.⁷⁷

As the breadth of this existing policy and its substantive requirements demonstrate, the Services would not be blindly wandering

74. See Holly Doremus, *Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation*, 30 ENVTL. L. REP. 10434, 10451-52 (2000) (discussing several species that the Services have reclassified after parties discovered new populations of the species, indicating that the species occurred in greater numbers than originally believed).

75. Notice of Policy Statement, 59 Fed. Reg. 34271 (July 1, 1994).

76. *Id.* at 34271.

77. *Id.*

into unfamiliar territory by utilizing the input generated under a reporting system. Moreover, the Services have expressed an emphatic desire to advance ESA implementation by expanding opportunities for outside scientific input and increasing public involvement.⁷⁸ With these considerations in mind, it becomes clear that using reporting system-generated data would be a logical and worthwhile step for FWS and NMFS information gathering efforts. It would likewise prove beneficial to their conservation efforts.

One of the most important ways that this information could bolster efforts to conserve listed species is by curbing the destruction of species habitat. Habitat loss is the infamous headliner on the marquee of factors contributing to species endangerment.⁷⁹ In fact, the depletion – or outright destruction – of habitat subjects 85% of at-risk species to the threat of extinction.⁸⁰ Although wildlife reserves and sanctuaries offer some hope for the protection of threatened and endangered species and their habitats, these areas are typically too small and too disjointed to bear the weight of cumulative habitat losses.⁸¹ Consequently, the ability to retard detrimental effects of habitat loss on a listed species necessarily entails protecting a more complete network of its habitat. As is so often the case, however, this is easier said than done.

More frequently than not, threatened and endangered species share their habitat with humans.⁸² As a result, protection of listed species habitat must involve regulation of human activities which degrade that habitat and thus imperil the listed species.⁸³ While the control of these types of human activities on federal land is reasonably attainable, it provides insufficient protection

78. See *Testimony of Craig Manson Before the House Resources Committee: Hearing on H.R. 4840* 107th Cong. (2002) (explaining that the Services supported an amendment to the ESA that would “broaden opportunities for scientific input and assure additional public involvement in Endangered Species Act implementation,” which would “improve the [Services] decision-making process and result in increased public confidence in the Service’s decisions”), available at <http://laws.fws.gov/testimony/2002/science.html>.

79. Bean, *supra* note 10, at 10709.

80. Robert L. Fischman and Jaelith Hall-Rivera, *A Lesson for Conservation from Pollution Control Law: Cooperative Federalism for Recovery Under the Endangered Species Act*, 27 COLUM. J. ENVTL. L. 45, 52 (2002).

81. *Id.* at 52-53.

82. Federico Cheever, *The Rhetoric of Delisting Species Under the Endangered Species Act: How to Declare Victory Without Winning the War*, 31 ENVTL. L. REP. 11302, 11306 (2001).

83. *Id.*

for the habitat of at-risk species.⁸⁴ Such regulation on federal land yields inadequate habitat protection because private parties, not the federal government, own a majority of the land in the United States.⁸⁵ This is significant because up to 90% of threatened or endangered species depend on habitat that falls, at least partially, outside the boundaries of federal lands.⁸⁶ In fact, as many as 50% of listed species depend on habitat that lies exclusively within private or other non-federal lands.⁸⁷ That these lands are in private ownership regularly confounds efforts to identify and conserve any listed species populations that may inhabit them. Again, this is because the Services cannot enforce the ESA's provisions in locations where they are unaware of the presence of listed species or their habitat.⁸⁸

The limits to ESA enforceability have been exacerbated by landowner leeriness toward the occurrence of threatened and endangered species on their land. Fear of incurring ESA-related regulation has prompted many private property owners to bar biologists and Services officials from conducting onsite species surveys.⁸⁹ In the face of such opposition, the Services often have little recourse because no law permits parties to enter private land to survey for listed species without the landowner's consent.⁹⁰ Unfortunately, some private landowners have taken ESA avoidance to the extreme by intentionally destroying species habitat or otherwise maintaining land in a condition unbefitting species survival.⁹¹ While these practices may not violate the Endangered Species Act per se, such territorial posturing has directly affected the quality and detail of listed species information that the Services are able to collect.⁹² Naturally, this limits the thoroughness of the information about listed species and hinders the Services' ability to conserve properly both the species and

84. See REED F. NOSS ET AL., *THE SCIENCE OF CONSERVATION PLANNING*, 8-9 (1997) (evaluating the necessity of habitat conservation on private lands).

85. Bean, *supra* note 10, at 10701-10703.

86. Jakki McDonald, *Rethinking the Endangered Species Act: Moving Beyond Conflicts and Promoting Positive Efforts for Conservation*, 26-FALL ENVIRONS ENVIL. L. & POL'Y J. 147, 162 (2002).

87. Bean, *supra* note 10, at 10703; Doremus, *supra* note 3, at 1120.

88. See *infra* text accompanying notes 373-78.

89. Bean, *supra* note 10, at 10703; Doremus, *supra* note 3, at 1120.

90. Doremus, *supra* note 3, at 1120, n.479 (citing a DOI policy that "forbids biological survey staff to enter private land without clear permission").

91. Bean, *supra* note 10, at 10709; McDonald, *supra* note 86, at 159.

92. Bean, *supra* note 10, at 10703.

their habitat.⁹³ Just as significant, these obstacles transgress the ESA's spirit and hamper its efficacy.⁹⁴

Because private landowners can have such a substantial and oftentimes unregulable impact on threatened and endangered species, their actions or lack thereof have a profound effect on the success of the ESA. Yet as it stands, the Act and the agency regulations directed toward administering it lack the tools necessary to bring about collaboration between private landowners, the scientific community, and government entities. This shortcoming of the ESA and implementing regulations is particularly significant because achieving stakeholder collaboration may present the only real hope of generating the information needed to fully understand at-risk species and their habitat. More importantly, by conserving these species and the habitats upon which they depend, collaboration may present the only hope of ESA success.

By involving all interested parties in a collaborative effort under the ESA, the proposed reporting system could help to fill information gaps regarding listed species, protect previously unknown at-risk species populations, and conserve their habitat. It would augment the Services' biological expertise by making available the localized knowledge of environmental professionals, thereby distributing the difficult task of collecting species and habitat-related information among the parties who already spend concentrated time onsite evaluating various environmental aspects of a property.⁹⁵ Similarly, the RS would provide listed species and habitat information from participating landowners, whose familiarity with their land can prove invaluable.⁹⁶ Together, these sources could furnish more complete and accurate species data than is currently available. In addition, because the reporting system would apply on a full-time basis, the data that it generates could provide a stable source for monitoring the range and separate populations of a listed species.⁹⁷ This monitoring

93. *Id.*

94. *See* 16 U.S.C. § 1531 (providing Congress' declaration of findings for enacting the ESA).

95. *See supra* Part I.A.1.

96. *See* McDonald, *supra* note 86, at 163 (discussing acquired expertise from landowners, such as farmers and ranchers, about the natural resources on their land); *see supra* Part I.A.2.

97. *See* Doremus, *supra* note 74, at 10457-59 (detailing several instances of the discovery of new information about species populations and ranges leading to changes in their listing classification under the ESA).

could help to account for the unknowns that plague current ESA-based conservation efforts and also continually yield useful data for the Services to consider when evaluating a species' progress toward recovery.⁹⁸

In essence, the reporting system would have the effect of placing countless additional eyes in the field to collect species and habitat data, while imposing little additional cost to the Services. As a result, the system could eventually free up some of the appropriated, but presently encumbered, ESA funds for the Services to direct at other conservation efforts.⁹⁹ By engaging the various stakeholder interests in the conservation process, a reporting system may also help eliminate the polarization that currently exists between private landowners, developers, the environmental community, private sector scientists, and the Services.¹⁰⁰ Collaboration among these groups could lead to a more complete picture of threatened and endangered species, which could produce heightened species and habitat conservation and make the Services' decision-making process under the ESA more streamlined and precise. But to understand how an RS could achieve these benefits, one must first understand why the ESA functions as it does. The essence of the Endangered Species Act lies in its broad power to conserve living resources. This breadth did not arrive overnight, however. It was the product of statutory evolution.

II.

THE EVOLUTION OF SPECIES CONSERVATION UNDER THE ESA

A unique statute, the ESA's ambition and scope made it an archetype for rare species protection worldwide.¹⁰¹ Congress drafted the statute in recognition of the escalating species-extinction rate, the potential unrealized resources hidden within ge-

98. *Id.*; see also Patlis, *supra* note 11, at 59-61 (evaluating the use of population trends to monitor listed species recovery).

99. See McDonald, *supra* note 86, at 171 (noting that involving competing interests under the ESA by instilling "proactive avenues for citizen participation" can reduce costly citizen suits aimed at implementing the statute and thus return funds to their intended uses of species and habitat protection).

100. See Steven L. Yaffee, *Avoiding Endangered Species/Development Conflicts Through Interagency Consultation*, in *BALANCING ON THE BRINK*, *supra* note 4, at 86, 94 (explaining that "[p]roponents of development often prefer a tough yet certain situation to a less constrained but ambiguous one").

101. John D. Dingell, *Foreword* to DANIEL J. ROHLF, *THE ENDANGERED SPECIES ACT: A GUIDE TO ITS PROTECTIONS AND IMPLEMENTATION* 1, 1 (1989).

netic variation, and the untold benefits to humankind that these disappearing species may provide.¹⁰² Consequently, the ESA envisions “a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved [and]. . . a program for the conservation of such endangered species and threatened species.”¹⁰³ This goal necessarily implicates not only achieving the survival of listed species, but also nurturing their recovery to the extent that protection is no longer warranted.¹⁰⁴ While these aspirations ring with a certain avant-garde quality, they did not simply appear in a sudden moment of legislative enlightenment regarding the importance of biological diversity. Rather, the ESA’s goals were inherited from earlier, less auspicious statutes aimed at rare species protection.

A. *The Origin of the Endangered Species Act*

Although the lineage of wildlife protection laws in the United States can be traced to the dawn of the Twentieth Century, the doctrinal impetus for today’s ESA arose during the 1960s’ burgeoning environmental movement.¹⁰⁵ The 1966 Endangered Species Preservation Act (ESPA or 1966 Act) – the primogenital species protection statute – represented the first congressional recognition of increasing human impacts to native species.¹⁰⁶ The 1966 Act created an innovative federal response to the growing problem of species extinction.¹⁰⁷ Congress articulated this innovation in the ESPA’s statement of purpose, which expressed the goal of providing “a program for the conservation, protection, restoration, and propagation of selected species . . . threatened with extinction.”¹⁰⁸

102. *TVA v. Hill*, 437 U.S. at 178-79 (citing H.R. REP. NO. 93-412 at 4-5 (1973)).

103. 16 U.S.C. § 1531(b).

104. Interagency Cooperation—Endangered Species Act of 1973, 50 C.F.R. § 402.02 (1995) (providing the Services’ definition of “recovery” as “improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the [Act]”). Although the ESA does not expressly list species recovery as a goal, little question exists concerning its prominence under the statute. DANIEL J. ROHLF, *THE ENDANGERED SPECIES ACT: A GUIDE TO ITS PROTECTIONS AND IMPLEMENTATION* 28 (1989); see also Patlis, *supra* note 11, at 56-61.

105. ROHLF, *supra* note 104, at 19-20.

106. Endangered Species Preservation Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973); ROHLF, *supra* note 104, at 19-20.

107. Kevin Cassidy, *Endangered Species’ Slippery Slope Back to the States: Existing Regulatory Mechanisms and Ongoing Conservation Efforts Under the Endangered Species Act*, 32 ENVTL. L. 175, 184 (2002).

108. 80 Stat. 926, 926.

In light of its stated purpose, the ESPA represented a respectable first attempt at nationwide protection of at-risk species. The statute, however, was riddled with weakness. For example, although the 1966 Act authorized the Department of Interior to list vertebrate species for protection, the statute also limited the protection of any listed species and their habitat to actions considered to be “practicable and consistent” with federal agencies’ primary purposes.¹⁰⁹ The ESPA also failed to regulate commerce involving listed species, including the sale and transport of species parts and products made from them, and it only prohibited the taking of species on federal lands.¹¹⁰ As a result, in large part due to these weaknesses, the 1966 Act’s bark was bigger than its bite. Fortunately, while the drafters of the Endangered Species Act of 1973 extracted portions of the statutory purpose from the 1966 Act, they chose to abandon the statute’s less potent attributes.¹¹¹

A few years after enacting the ESPA, Congress decided to amend it with the Endangered Species Conservation Act of 1969 (ESCA or 1969 Act).¹¹² Although the ESCA added invertebrates to the list of federally-protected species, the statute contributed little in the way of actual conservation methods.¹¹³ Nonetheless, the ESCA did cultivate some useful substantive tools that remain valuable today. The 1969 Act’s most important contribution to addressing the needs of at-risk species was the adoption of the “best scientific and commercial data available” standard for evaluating species listings.¹¹⁴ By foreclosing the consideration of economic factors during species listing determinations, this seemingly innocuous standard helped elevate federal species conservation to Promethean ranks.¹¹⁵ Yet species conservation continued to elude the ESCA’s drafters.

B. *Revamping the Roots: Transformation of the ESA*

Even with the combined innovations embodied in the meshing of the 1966 Act with the 1969 Act, it became evident to Congress that efforts at protecting listed species were making little head-

109. *Id.* at § 1(b); *Hill*, 473 U.S. at 175; ROHLF, *supra* note 104, at 21.

110. ROHLF, *supra* note 104, at 21.

111. *Compare* 16 U.S.C. § 1531(b) (2003), with 80 Stat. 926 (1966).

112. Endangered Species Conservation Act of 1969, Pub. L. No. 91-135, 83 Stat. 275 (repealed 1973).

113. ROHLF, *supra* note 104, at 21-22.

114. 83 Stat. at 278; Cassidy, *supra* note 107, at 185.

115. Cassidy, *supra* note 107, at 185.

way. In fact, reports to the legislature indicated that the rate of extinction was actually accelerating.¹¹⁶ Congress learned that its ongoing efforts were not succeeding because they did not effectively protect natural habitat, the loss of which poses the greatest threat to at-risk species.¹¹⁷ President Nixon berated the existing laws as inadequate to “provide the kind of management tools needed to act early enough to save a vanishing species.”¹¹⁸ Responding to these recognized setbacks in the protection of native wildlife, Congress reexamined its choice of trying to quell extinction under a policy of conservative conservationism.¹¹⁹ The result was the ESA.¹²⁰

By codifying the ESA in 1973, Congress rescinded the 1966 and 1969 Acts.¹²¹ Yet, the time and resources committed pursuant to those statutes should not be viewed as misspent. Indeed, over the course of seven short years, the ESPA and the ESCA laid the foundation upon which Congress built the ESA—a statute that the Supreme Court dubbed “the most comprehensive legislation for the protection of endangered species ever enacted by any nation.”¹²²

With the enactment of the ESA, Congress extended the scope of at-risk species protection and imposed much more stringent requirements for achieving it. First, the new statute contemplated the protection of plants as well as animals.¹²³ The ESA’s drafters refined the approach to addressing at-risk species by shifting the focus from species in danger of worldwide extinction to species in danger of, or likely to become in danger of, “extinction throughout all or a significant portion of [their] range.”¹²⁴ This approach provided the added benefit of identifying, listing, and conserving both endangered and threatened species, the latter of which had not previously been afforded statutory protection.¹²⁵ Second, Congress greatly enlarged the taking prohibition to include a larger variety of means by which species could be injured or killed and expanded its geographic application to pro-

116. *TVA v. Hill*, 437 U.S. at 176 (citing H.R. REP. NO. 93-412, at 4 (1973)).

117. *Id.* at 179.

118. The President’s 1972 Environmental Program, 8 WEEKLY COMP. PRES. DOC. 223-24 (Feb. 14, 1972).

119. *TVA v. Hill*, 437 U.S. at 176.

120. 16 U.S.C. §§ 1531-1544 (2003).

121. Cassidy, *supra* note 106, at 186.

122. *TVA v. Hill*, 437 U.S. at 180.

123. Doremus, *supra* note 3, at 1049.

124. 16 U.S.C. §§ 1532(6), 1532(20) (2003); Cassidy, *supra* note 107, at 186.

125. 16 U.S.C. §§ 1532(6), 1532(20) (2003); Cassidy, *supra* note 107, at 186.

hibit takings by any person anywhere within the United States, not just takings within federal lands like the ESA's predecessors.¹²⁶ Finally, the new ESA adopted a mandate for all federal agencies to use their authority to conserve listed species and ordered the agencies not to "jeopardize" the species' continued survival.¹²⁷ By incorporating these new policies into statutory provisions, Congress imbued the ESA with a more advanced capacity to shield threatened and endangered species from extinction. A reporting system could help to maximize this capacity and bring about greater opportunities for conservation.

III.

THE FRAMEWORK FOR SUCCESS: AN OVERVIEW OF MANDATORY ESA PROVISIONS THAT COULD BENEFIT FROM A REPORTING SYSTEM

Because the ESA is a science-based statute that Congress developed over a relatively brief period of time to address a sweeping range of activities and circumstances, one might think that the ESA would be impenetrably complex. Remarkably, it is not. The heart of the ESA lies principally within three mandatory sections: 1) section 4, which provides the procedures for listing species, designating critical habitat, and developing species recovery plans;¹²⁸ 2) section 7, which establishes mandates and mechanisms for conservation, cooperation, and consultation among the federal agencies;¹²⁹ and 3) section 9, which articulates the prohibited acts under the statute.¹³⁰

While these sections represent crucial components of the ESA's framework, standing alone they are incapable of providing a means for achieving complete species conservation and recovery. Like skeletal bones, the ESA's sections provide its internal strength, but they require added substance to function properly. A reporting system and the information that it generates could endow each of the aforementioned mandatory sections of the ESA with such substance.¹³¹

126. 16 U.S.C. §1532(19) (2003); Kathryn A. Kohm, *The Act's History and Framework*, in *BALANCING ON THE BRINK*, *supra* note 4, at 10, 15.

127. 16 U.S.C. § 1536 (2003); Kohm, *supra* note 126.

128. 16 U.S.C. § 1533 (2003); *see infra* Part III.A.

129. 16 U.S.C. § 1536 (2003); *see infra* Part III.B., IV.B.

130. 16 U.S.C. § 1538 (2003); *see infra* Part III.C.3.

131. There are also other sections of the ESA that could draw benefits from the proposed reporting system, such as section 10's exemption provisions. *See* 16 U.S.C. § 1539 (2003). Because these provisions are voluntary and determination of their

A. Section 4 and the Benefits of a Reporting System

Section 4 functions as the ESA's focal point: it is the beginning and the end of species conservation. Its provisions set forth the procedures for listing species as "threatened" or "endangered" and revising those listings when warranted, for designating critical habitat for listed species and modifying those designations, and for developing species recovery plans.¹³² Together, these provisions serve one of the most fundamental roles in at-risk species protection, a role so important Congress has referred to section 4 as the "Keystone of the Endangered Species Act."¹³³

A reporting system could prove very useful for carrying out several of section 4's provisions, including the procedures for reclassifying and delisting species, revising critical habitat designations, and developing and implementing species recovery plans. Although a reporting system could significantly improve the Services' ability to implement these provisions, two of the section's other provisions – those involving initial listing determinations and initial critical habitat designations – likely would derive little benefit from an RS.

1. Species Listing Determinations

Unquestionably, from the standpoint of ESA implementation, the most pivotal provisions of section 4 pertain to species listings. Unless a species is listed as threatened or endangered, it can not receive protection under the ESA.¹³⁴ The Services decide whether or not to list a species based on any combination of five factors: 1) ongoing or possible impacts to the species' habitat or range; 2) overutilization of the species for various anthropogenic purposes; 3) impacts of disease or predation on the species; 4) deficient existing regulatory mechanisms to protect the species;

benefits less certain, for brevity's sake, analysis of these provisions is reserved for a later date. Note, however, that section 6, another of these voluntary sections that is used for creating state cooperative agreements, is addressed thoroughly *infra* at Part IV.C.

132. 16 U.S.C. § 1533 (2003).

133. H.R. REP. NO. 97-567, at 10 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2807, 2810.

134. Cassidy, *supra* note 107, at 187. The ESA does contain a narrow exception to this notion, however, for situations in which a non-listed species resembles a listed species so that the two are virtually indistinguishable. 16 U.S.C. § 1533(e) (2003). In addition, the Act requires certain procedures when agency actions will likely jeopardize candidate species or adversely modify proposed critical habitat. *Id.* § 1536(a)(4).

or 5) any other factor bearing on the species' survival.¹³⁵ When determining species listings, the ESA compels the Services to employ the "best scientific and commercial data available."¹³⁶ Although a reporting system would help to provide this type of information later on in the ESA process, the nature of determining species listings makes it unlikely that these initial determinations would benefit from an RS.

The Services' initial listing determinations probably would not be prone to improvement from a reporting system for two reasons. One arises from the inherent exigency required for these determinations; the other stems from an unavoidable idiosyncrasy in the way that an RS must interact with the ESA. Both reasons originate in the text of section 4.

Due to the uncertainty surrounding at-risk species, Congress instilled section 4's listing determinations with a mode of urgency. The ESA allows the Services to begin considering a species as a candidate for listing based on their own initiative or in response to a petition from any interested person.¹³⁷ The majority of listing proposals are attributed to the latter, which is known as the citizen petition process.¹³⁸ Upon receiving a citizen petition, the Services have only ninety days to make a preliminary determination of whether the petition requires further evaluation.¹³⁹ If the petition contains substantial supporting information which warrants further evaluation, the Services must engage in a formal rulemaking to evaluate the proposed listing.¹⁴⁰ This stage marks the beginning step when the Services undertake a self-initiated listing determination.¹⁴¹ From this point on, the timing requirements are identical for Services-initiated listing determinations and those initiated by citizen petitions.¹⁴²

135. 16 U.S.C. § 1533(a)(1) (2003).

136. *Id.* § 1533(b)(1)(A).

137. *Id.* § 1533(b)(3)(A).

138. LARRY R. LIEBESMAN & RAFFAEL PETERSEN, *ENDANGERED SPECIES DESKBOOK* 18 (Env'tl. L. Inst., Deskbook Series, 2003).

139. 16 U.S.C. § 1533(b)(3)(A) (2003).

140. *Id.* § 1633(b)(3)(B). In addition, the Services can determine that the petitioned action is "warranted but precluded" and indefinitely delay the listing determination. *Id.* While this provision has generated substantial controversy, it is beyond the scope of this discussion. See Oliver Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 286 (1993) (describing the provision as a "black hole for unlisted endangered species").

141. 16 U.S.C. § 1533(b)(5)(A) (2003).

142. See 50 C.F.R. §§ 424.14(b)(3), 424.17 (2004) (establishing the same time limits for listing decisions initiated by the Services and by petition).

The actual listing process begins when FWS or NMFS provides notice and background information supporting a proposed listing determination in the Federal Register as an agency rule. The Services then have exactly one year from the date of publishing the proposal to make the final listing determination.¹⁴³ The Services must choose whether to list the candidate species as threatened or endangered under the ESA, to withdraw the proposed listing of the candidate species, or if there is substantial scientific disagreement over the sufficiency or accuracy of available data for making the determination, to extend the determination period for a single six-month period to collect additional data.¹⁴⁴

This is the maximum amount of time that section 4 of the ESA allows for listing determinations—a total of eighteen months including extensions. During this time, section 4 requires the Services to consider only the best scientific and commercial data available.¹⁴⁵ This standard is relatively liberal; it does not necessarily require the Services to use complete or even conclusive data.¹⁴⁶ In fact, at least one court has held that, for purposes of making initial listing determinations, section 4 does not obligate the Services “to conduct independent studies” when the available data is sparse.¹⁴⁷ Such a succinct and narrow review process is necessary because “Congress intended listing actions to occur sooner rather than later.”¹⁴⁸

Because a reporting system involves continuously collecting information about elusive organisms, it is questionable whether the system could generate enough species-specific data during the short twelve to eighteen month time period to affect significantly a pending listing determination. Even if an RS could generate significant data so quickly, the idiosyncratic interaction between the RS and the ESA would most likely preclude the Services from using any of the new data. This is because the Services would need to adopt an RS as a congressionally-authorized

143. 16 U.S.C. § 1533(b)(6)(A) (2003).

144. *Id.* § 1533(b)(6)(A)-(B).

145. *Id.* § 1533(b)(1)(A).

146. *Defenders of Wildlife v. Babbitt*, 958 F. Supp. 670 (D.D.C. 1997).

147. *S.W. Ctr. for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (D.C. Cir. 2000); see also Doremus, *supra* note 3, at 1078 (“The available scientific information must be judged in light of the stringent deadlines the ESA imposes on listing determinations. The listing agencies may not postpone determinations in order to gather additional scientific information.”).

148. *Conner v. Burford*, 848 F.2d 1441, 1454-56 (9th Cir. 1988), *cert. denied*, 489 U.S. 1012 (1989).

agency regulation if they intended to implement the system under the ESA.¹⁴⁹ However, the ESA only authorizes the Services to create regulatory conservation programs for listed species; no such authorization exists for candidate species because they have not yet been cloaked with the protections accompanying threatened and endangered status designations.¹⁵⁰ Therefore, it is improbable that a reporting system would significantly benefit initial listing determinations. For purposes of revising the listing determination, however, an RS could prove a particularly useful asset.

2. Listing Reclassifications and Delistings

In addition to articulating the steps for listing species under the ESA, section 4 provides the procedures for revising a species' listing classification. Section 4 requires the Services to review listing classifications at least once every five years to ascertain whether a species' status warrants changing its classification.¹⁵¹ Despite the five-year review requirement, the Services may conduct these status reviews more often when responding to citizen petitions or after receiving information which indicates a reclassification may be necessary.¹⁵² The same general procedures apply regardless of whether a review is initiated by a citizen petition or by the agency.¹⁵³ Once again utilizing the best scientific and commercial data available, the Services may determine that a particular species should be delisted, or that an endangered species' status has improved and it should be reclassified as threatened, or that a threatened species' status has deteriorated and it should be reclassified as endangered.¹⁵⁴ For each of these three possible reclassifications, FWS and NMFS must consider

149. See Administrative Procedure Act, 5 U.S.C. § 706 (2003) (requiring reviewing courts to set aside arbitrary and capricious agency actions).

150. 16 U.S.C. § 1536(a)(1) (2003); see also *infra* Part IV (discussing possible authorizations for a reporting system under the ESA). Of course, section 4 does require the Services to monitor the status of candidate species for which they determine a listing action is "warranted but precluded." *Id.* at § 1533(b)(3)(C)(iii) (2003). Although the voluntary reporting mechanism could benefit this monitoring, it is unlikely that a full blown reporting system, which includes a reporting requirement, could be enforced against the regulated community. In addition, via the Candidate Conservation Agreements policy, the Services have already implemented an incentive-based voluntary system both to protect candidate species and to collect data about them. 64 Fed. Reg. 32,706, 32,733-36 (June 17, 1999).

151. 16 U.S.C. § 1533(c)(2) (2003).

152. *Id.* § 1533(c)(2) (2003); 50 C.F.R. § 424.14(b)(1) (2004).

153. 50 C.F.R. §§ 424.14, 424.21 (2004).

154. 16 U.S.C. § 1533(c)(2)(B) (2003).

the same five factors they used to determine the species' status for the initial species listing classification.¹⁵⁵

For decisions to delist a species altogether, the Services must take a few additional precautionary measures. FWS and NMFS may remove a species from the list only if they find that the species no longer qualifies as threatened or endangered.¹⁵⁶ They may make this finding only when data demonstrate that the species has been successfully conserved, that it has succumbed to extinction, or that its initial inclusion on the list was erroneous.¹⁵⁷ When the Services delist a species because they consider it "conserved" – in other words, that it has recovered to the extent that it no longer requires ESA protection – they must continue monitoring its status for five years to ensure the species' ongoing subsistence.¹⁵⁸ These evaluations allow the listing reclassification and delisting processes to function together as a powerful tool for species protection. But they are not perfect, and a reporting system could substantially strengthen these processes by enhancing their accuracy and efficiency.

Notwithstanding the general inability of a reporting system to generate useful information for initial species listing determinations, an RS would likely bear fruit to use in subsequent reviews of listing classifications and decisions to delist a species. While the ESA compels the Services to employ the same basic criteria and procedures for reclassifying and delisting species as they initially used for listing them, the statute introduces an added measure of qualitative analyses into decisions to reclassify or delist a species.¹⁵⁹ For instance, any time the Services consider revising a listing classification or delisting a species, they must consult "as appropriate" with affected states and other federal agencies, as well as interested persons and organizations.¹⁶⁰ In addition, the longer review period associated with listing revisions affords FWS and NMFS more time to engage in a searching assessment of available information about the species at issue.¹⁶¹ The Services' joint regulations provide an expansive, but not exhaustive,

155. *Id.*; 50 C.F.R. § 424.11(c)-(d) (2004); *see supra* text accompanying note 135.

156. 50 C.F.R. § 424.11(d) (2004).

157. *Id.*

158. 16 U.S.C. § 1533(g) (2003).

159. *Id.* § 1533(b)(3)(A) (2003).

160. 50 C.F.R. § 424.13 (2004).

161. *See supra* text accompanying notes 151-52. Recall that the Services must review species listings only once every five years unless a petition requires earlier review.

list of informational sources for FWS and NMFS to consult during the review process. Among the suggested sources are “information received from experts . . . and comments from interested parties.”¹⁶²

These regulations encourage the Services to consider the same variety of information that a reporting system would yield—expert information relayed from the field and comments solicited from landowners. By providing this information on a regular and ongoing basis, an RS could help the Services streamline their species classification reviews, address citizen petitions more efficiently, and evaluate the accuracy of initial and revised classifications with less difficulty. This could liberate financial and personnel resources that are encumbered under the burdens of the current periodic review process and allow the Services to redirect these resources toward actual species conservation.

A reporting system could provide additional benefits to the species delisting process. In fact, an RS could augment the decision-making process for each of the three enumerated delisting bases: recovery, extinction, and correction.¹⁶³ Each is addressed in turn.

a. Potential Benefits to Recovery Determinations

The information that a reporting system would generate could help to improve the process of identifying and evaluating a listed species' recovery status. The Services consider achieving the recovery of threatened and endangered species as one of the chief priorities behind implementing the ESA.¹⁶⁴ Although the ESA fails to define “recovery” within its text, the legislative history of the Act indicates that Congress intended to recover species to the point that “they are viable components of their ecosystem.”¹⁶⁵

In line with this intent, the Services' joint regulations provide that recovery “means improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act.”¹⁶⁶ FWS and NMFS

162. 50 C.F.R. § 424.13 (2004).

163. *Id.* § 424.11(d) (2004).

164. *Id.* § 424.11(d)(2) (2004).

165. A Legislative History of the Endangered Species Act of 1973, as Amended in 1976, 1977, 1978, 1979, and 1980, at 729 (Comm. Print 1982); *see also* Patlis, *supra* note 11, at 59-62.

166. 50 C.F.R. § 402.02.

explain further in their guidance documents that evaluating a species' recovery involves evaluating three factors: 1) whether the species' population abundance has stabilized or, better yet, is increasing; 2) whether threats to the species' survival have been eliminated or mitigated; and 3) whether the species' populations have improved to the point that they are naturally self-sustaining.¹⁶⁷ By supplying continually updated information about the species, filling in existing data gaps to make the information about the species more complete, and helping to depict the overall picture of the species' health, an RS could help the Services better evaluate a species' progress toward recovery.

A reporting system's input could help FWS and NMFS determine a species' population abundance and its evolving status by supplementing the Services' population health and range data. An RS could assist this process by generating sightings information that would assist the necessary monitoring of the numbers of individuals comprising a species' separate populations.¹⁶⁸ In addition, an RS could supply additional information about a species and the various locations of its populations, thereby providing a more complete view of the different threats and impacts confronting the species.¹⁶⁹ In this way, a reporting system might better reveal threats to a listed species that have impacted it over time, threats that were previously unrecognized or that have arisen only recently, and threats that the species has overcome.

A reporting system could also help the Services monitor a species' different populations to determine whether they have achieved natural self-sustainability. To make this determination, FWS and NMFS must find that the species and its populations have cumulatively achieved more than a "minimum viable population" (MVP) status.¹⁷⁰ The MVP is a calculable standard for

167. Patlis, *supra* note 11, at 60-68.

168. *Id.* at 61.

169. Cheever, *supra* note 82, at 11315. It appears that most courts that have considered the issue of species recovery believe that the Services should base recovery determinations on the elimination or mitigation of threats impacting a listed species rather than the species' population abundance and range. See, e.g., *Defenders of Wildlife*, 130 F. Supp. 2d at 131; *Fund for Animals v. Babbitt*, 903 F. Supp. 96, 111 (D.D.C. 1995). However, as previously discussed, the population abundance and overall range can indicate the variety and gravity of threats confronting a species, thus serving as a barometer for its recovery status. See *supra* text accompanying notes 67-70.

170. Patlis, *supra* note 11, at 62. Recall that the ESA's drafters believed that recovery entailed conserving species so that "they are viable components of their ecosystems." See *supra* text accompanying note 165. To achieve self-sustainability in the

estimating a species' subsistence threshold.¹⁷¹ In general, two primary categories of data factor into the MVP determination for a species' population: distribution and abundance.¹⁷² As previously discussed, a reporting system can provide updated information about population abundance and range, thus assisting the Services' MVP determinations.¹⁷³ More importantly, however, because the most commonly used MVP calculation contains inherent data-related flaws, an RS may bring greater precision to the determinations.¹⁷⁴

The most persistent shortcoming in a typical MVP determination is that, at bottom, it is nothing more than an estimation. This usually precludes the calculation from differentiating between a species' "effective population size" and its "actual" population size.¹⁷⁵ These two variables are connected, however, because the actual numbers of individuals in a population and specifics about them are inextricably linked as trend indicators to the numbers of individuals deemed effective for species viability.¹⁷⁶ Although the certainty of a species' long-term survival is impossible to gauge with a mathematical equation, the probability of its survival predictably rises as its abundance and range increase.¹⁷⁷ Put simply, species with greater population abundance concentrated across broader ranges "are less suscepti-

foreseeable future, a species' population must be more than minimally viable; it must be viable and have the ability to breed in sufficient numbers for each generation to replace itself. Patlis, *supra* note 11, at 68.

171. *Id.* at 62.

172. *Id.* at 62-63.

173. See *supra* text accompanying notes 67-70.

174. See Patlis, *supra* note 11, at 64 n.36 (describing the "rule of thumb" approach for determining a species' MVP).

175. *Id.* at 64. The effective population is influenced by "[t]he number of breeding individuals in a population, [t]ime fluctuations of the population size (seasonal, climatic change), [s]ex ratio, variance of the number of offspring (polygyny, polyandry, sexual selection), [i]nbreeding, [and o]verlapping generations." LAURENT EXCOFFIER, INTRODUCTION TO POPULATION GENETICS (3): EFFECTIVE POPULATION SIZE 2 (2003), available at http://www.cmpg.unibe.ch/pdf/PG_03_Effective%20size%2004.pdf. Note that another important flaw of the MVP calculation is that it is not particularly accurate for evaluating mobile species, particularly migratory species. Patlis, *supra* note 11, at 64-65 n.39. Logic dictates that any population count or estimate of mobile species would be impacted by the species' mobility. Thus, this flaw is one that neither a reporting system nor any other population survey could address. The only sure way to deal with this flaw is to adopt a different method for determining MVP. *Id.* at 65.

176. B.E. Reiman & F.W. Allendorf, *Effective Population Size and Genetic Conservation Criteria for Bull Trout*, 21 N. AM. J. OF FISHERIES MGMT. 756, 757 (2001); Cheever, *supra* note 82, at 11307.

177. Cheever, *supra* note 82, at 11314.

ble to extinction than species confined to small portions of their range” because broad distribution reduces the likelihood of a cataclysmic event impacting every population of the species.¹⁷⁸ Thus, information about a species’ range and populations is important for calculating its minimum viable population status.

An RS could provide more detailed evidence of a listed species’ population abundances and ranges. By updating information about actual population numbers and their distribution, a reporting system could allow the Services to track population trends more effectively. This would provide better information about a species’ effective population size and could help to minimize the overuse of estimations in MVP determinations, which in combination amount to one of the major flaws rendering the process ineffective.¹⁷⁹ In short, a reporting system could instill added measures of efficiency and accuracy into determinations of a species’ recovery.

Finally, a reporting system could benefit FWS and NMFS by establishing a more standardized species monitoring program. The ESA requires the Services to monitor for at least five years the population health of a species they have delisted.¹⁸⁰ Some commenters claim that the Services have failed to comply with this provision.¹⁸¹ The information that a reporting system would generate for a species over the term of its listing could help to jumpstart the monitoring of recovered species by providing a more thorough depiction of the species’ population locations and range. Again, the efficiency that can be derived from streamlining mandatory ESA programs could liberate the Services’ personnel and financial resources, making them available for other conservation efforts.

b. Benefits to Extinction Determinations

A reporting system could supplement the Services’ extinction determinations in much the same way it could supplement their species recovery determinations. The extinction of species in the United States unfortunately is not a rare occurrence; an in-depth

178. *Id.* (citing Reed Noss, *Some Principles of Conservation Biology as They Apply to Environmental Law*, 69 CHI. -KENT L. REV. 893, 900 (1994)).

179. See REED F. NOSS ET AL., *THE SCIENCE OF CONSERVATION PLANNING* 173 (1997) (discussing the usefulness of applying population data collected in the field as a measure of population trends).

180. 16 U.S.C. § 1533(g) (2003).

181. Cheever, *supra* note 82, at 11307 n.43.

study of the nation's at-risk species revealed that as many as 500 species have succumb to extinction in recent history.¹⁸² Nonetheless, determining whether a species has actually gone extinct poses a difficult challenge for the Services. This is not surprising because species on the fringe of extinction occur in even smaller numbers than typical listed species, which causes them to be harder to monitor effectively.¹⁸³ Recognizing this difficulty, the Services' regulations make it difficult to remove the ESA's protections by delisting a species for extinction. The regulations require that, "[u]nless all individuals of the listed species had been previously identified and located, and were later found to be extirpated from their previous range, a significant amount of time must be allowed before delisting to indicate clearly that the species is extinct."¹⁸⁴

In many instances, the inherent uncertainty of a species' continued subsistence has left the Services in a lurch where they have no indication that a species still exists, but lack the requisite proof that it is extinct.¹⁸⁵ As a result, FWS and NMFS must retain the species listing classification until the necessary evidence surfaces to make a determination one way or the other.¹⁸⁶ This is significant because the species' continued inclusion on the threatened or endangered species list requires the Services to continue directing resources toward conservation programs and other measures to protect the species.¹⁸⁷ Thus, the uncertainty results in an administrative anomaly. If the species continues to exist – not seen, but not extinct – then the ESA has served its purpose by continuing to protect the species survival.¹⁸⁸ If, on the other hand, unbeknownst to the Services, the species has quietly faded into extinction, they must continue funneling already-strained resources to conserve a species that no longer exists. While, certainly, this latter possibility adheres to the spirit of the ESA, it also imposes an opportunity cost on other species which

182. The Nature Conservancy, *Precious Heritage: The Status of Biodiversity in the United States* (Bruce A. Stein et al. eds., 2000).

183. See Doremus, *supra* note 3, at 1128-29.

184. 50 C.F.R. § 424.11(d)(1) (2004).

185. See Doremus, *supra* note 3, at 1128-29.

186. *Id.*

187. See Ruhl, *supra* note 54, at 1122-25 (discussing the protection and conservation benefits under section 7(a)(1) that automatically apply to a species once the Services list it as threatened or endangered).

188. 16 U.S.C. § 1531 (2003).

could have benefited from resources that were instead directed at a literal red herring.

It is unclear whether an RS could substantially help the Services determine whether to delist a species because it has become extinct. However, as a consequence of its ability to foster continual monitoring of listed species and thus to provide frequent updates about population abundance and range, it seems likely that an RS could assist extinction determinations. At a minimum, by putting countless additional observers in the field, an RS could provide support for or against the determination of a species' existence and possibly abate inefficient resource allocation.

3. Critical Habitat Designations

When the Services decide to list a species as threatened or endangered, the ESA also compels them to designate critical habitat (CH) for that species.¹⁸⁹ Critical habitat consists of specific areas that are "essential to the conservation of the species."¹⁹⁰ Unlike listing decisions, the Services must designate critical habitat using the "best scientific data available, after taking into account the economic impact and any other relevant impact" of the designation.¹⁹¹ However, the designation cannot simply delineate every conceivable area that the species might inhabit.¹⁹² Thus, critical habitat designation is a complex business that the Services must complete during the relatively short time allotted for species listings; as an unfortunate result, attaining absolute precision during the initial designation is unlikely.¹⁹³

To account for and hopefully neutralize this imprecision, the ESA permits the Services, again considering the economic impacts and using the best scientific data available, to revise the designation "from time-to-time . . . as appropriate."¹⁹⁴ The Services' joint regulations implement this provision by authorizing FWS and NMFS to revise a CH designation "as new data become[s] available."¹⁹⁵ In addition to this self-initiated revision process, citizen petitions may also facilitate the revising of a criti-

189. 16 U.S.C. § 1533(a)(3)(A) (2003).

190. *Id.* § 1532(5)(A) (2003).

191. *Id.* § 1533(b)(2) (2003). Recall that section 4 listing determinations do not consider the economic impact of classifying a species as threatened or endangered.

192. *Id.* § 1532(5)(C) (2003).

193. See *infra* text accompanying notes 207-14.

194. 16 U.S.C. §§ 1533(a)(3)(A)(ii) 1533(b)(2) (2003).

195. 50 C.F.R. § 424.12(g) (2004).

cal habitat designation.¹⁹⁶ Regardless of whether revisions initiate unilaterally from the Services or begin with a citizen petition, the Services must make any revisions in accordance with the same statutory procedures that the ESA assigns for initial CH designations.¹⁹⁷

Like section 4's species listing determinations, the designation of critical habitat serves a primary role in listed species protection.¹⁹⁸ Notwithstanding its primacy, the initial CH designation process probably would not be substantially benefited by an RS. Conversely, the process of revising critical habitat designations could benefit significantly from a reporting system's input.

The initial process of designating critical habitat would likely derive little benefit from a reporting system because of its statutory similarities with the initial species listing process. The ESA intends for the Services to designate critical habitat for a listed species at the same time they list the species as threatened or endangered.¹⁹⁹ Thus, the same evaluative and temporal restrictions that vitiate an RS's efficacy for initial listing determinations would have a corresponding impact on concurrent designations of critical habitat.²⁰⁰ However, the ESA's requirement for CH designation and the time limits it imposes on the process are somewhat more elastic than the rigid listing determination time requirements.

The flexibility in the CH designation process arises from the language of section 4, which requires the Services to designate critical habitat concurrently with listing determinations only "to the maximum extent prudent and determinable."²⁰¹ FWS and NMFS regulations explain that CH designation is not "determinable" when insufficient information exists to analyze properly the designation's impacts or when insufficient information about a species' biological needs exists to identify specific areas critical to the species' survival.²⁰² If the Services determine that a CH

196. 16 U.S.C. § 1533(b)(3)(D) (2003).

197. *Id.* § 1533(b)(2); 50 C.F.R. §§ 424.12(g), 424.14(c) (2004).

198. See BEAN & ROWLAND, *supra* note 6, at 200 (labeling critical habitat designation, together with species listing, as the "Acts Fundamental Units").

199. 16 U.S.C. §§ 1533(a)(3)(A), 1533(b)(2) (2003).

200. See discussion *supra* Part III.A.1.

201. 16 U.S.C. § 1533(a)(3)(A) (2003).

202. 50 C.F.R. § 424.12(a)(2) (2004). The regulations also provide that CH designation is not "prudent" when identifying a species' critical habitat could increase the risk of the species being taken or when CH designation would not benefit the species. *Id.* § 424.12 (a)(1).

designation for a particular species is not determinable, they may extend the time limit for one additional year to collect supplementary information concerning the impact of the designation or the species' biological needs.²⁰³ At the end of the one-year deadline extension, however, the provision requires the Services to publish a CH designation using whatever information is available at that time.²⁰⁴

If the Services decide to extend the time limit for a CH designation, the potential exists for a species to have been listed as threatened or endangered for up to one year before its critical habitat is designated. Because the listing of the species would activate the reporting system, the system could generate one year's worth of information about that species, which the Services could incorporate into their designation. But as previously discussed, an RS must be in place and functioning for a sufficient time to develop the full range of potential information available for a species.²⁰⁵ As a result, while a reporting system could contribute information for CH designations to a greater extent than it could for initial listing determinations, it is unlikely that an RS would have a substantial effect on the initial process of designating critical habitat. This is not the case, however, for the process of revising CH designations.

Contrary to its inefficacy for initial CH designations, a reporting system could have a striking impact on the process of revising the designations. In several ways, a reporting system could improve proposed CH revision analysis and improve the designations themselves. First, a functioning RS would constantly provide updated information about species and their habitats. By facilitating the identification of new species populations and tracking the progress of known populations, this new information would supplement the Services' understanding of species' biological needs.²⁰⁶ Such input constitutes the type of new information that FWS and NMFS' joint regulations contemplate for their Services-initiated revisions to CH designations.²⁰⁷

Second, the constant supply of information from an RS could streamline the decision-making process for revising critical habitat designations. Although neither the ESA nor the Ser-

203. 16 U.S.C. § 1533(b)(6)(C)(ii) (2003).

204. *Id.*

205. See discussion *supra* Part III.A.1.

206. See discussion *supra* Part I.B.1.

207. 50 C.F.R. § 424.12 (2004).

VICES' joint regulations impose a specific deadline for self-initiated CH revisions, the Act specifies that FWS and NMFS may revise the designations "as appropriate."²⁰⁸ Generally, though, most revisions are prompted by citizen petitions either to enlarge or to confine an earlier critical habitat designation.²⁰⁹ This is in large part due to the deficient funding available to the Services for designating critical habitat and especially for updating designations.²¹⁰ Nevertheless, the Services' failure to designate and revise designations has become a lightning rod for citizen suits aimed at enforcing section 4.²¹¹

Lawsuits have stricken the agencies' already-tight budgets, creating a self-perpetuating cycle of litigation in which claimants bring citizen suits to compel the Services to designate CH.²¹² When the Services respond to the suit with a hastily-made and under-funded designation, claimants often initiate another suit to challenge the designation as too general or inaccurate.²¹³ This forces FWS and NMFS to take funds earmarked for planned species conservation measures and redirect them toward defending lawsuits.²¹⁴ Absent substantial funding increases from Congress, there is little hope of resolving this dilemma.²¹⁵ This does not mean that the situation is hopeless, however. A reporting system could help to break the ouroborosic²¹⁶ chain of citizen suits aimed at instilling accuracy into CH designations. By helping to verify the accuracy of existing critical habitat designations and by providing information to aid in revising them when appropriate, an RS could streamline the revision process and liberate the Services' limited financial resources to use for their intended purpose: conservation.

208. 16 U.S.C. § 1533(a)(3)(B) (2003).

209. *Id.* § 1533(b)(3)(D) (2003).

210. Press Release, United States Dept. of Interior, Fish and Wildlife Service, Endangered Species Act "Broken"—Flood of Litigation Over Critical Habitat Hinders Species Conservation (May 28, 2003), *available at* http://endangered.fws.gov/criticalhabitat/ch_pressrelease.pdf.

211. *See id.* Assistant Secretary of Interior for Fish and Wildlife, Craig Manson, explained: "[t]he ever-increasing number of lawsuits has brought this problem to a crisis where we are simply out of funds for this year." *Id.*

212. *Id.*

213. *Id.*

214. *See id.*

215. *Id.*

216. An Ouroboros is a circular symbol that depicts a snake swallowing its own tail; it is often used to represent infiniteness.

Third, when interested parties submit petitions requesting a revision to a CH designation, the Services must determine, “to the maximum extent practicable” within ninety days, whether substantial scientific information supports the proffered revision.²¹⁷ If the Services make a preliminary affirmative finding of the petition’s merit, they then have one year to determine if evidence justifies the proposed revision.²¹⁸ These rather confined time limits would render the input from a reporting system extremely useful to FWS and NMFS. An RS’s constantly updated information could fortify the Services’ ability to comply with the ESA-imposed time limits and respond to proposed revisions with greater accuracy and efficiency. Moreover, because of the additional information that an RS could provide, the Services would be in a better position to evaluate any substantiating scientific information submitted with a third—party petition for revision.

4. Section 4 Species Recovery Plans

Section 4 of the ESA also requires the Services to develop and implement recovery plans in the spirit of achieving conservation and survival for all at-risk species.²¹⁹ Although the Services may prioritize their development of recovery plans based on the anticipated benefits to a particular species, all plans must incorporate: 1) “site specific management actions” to conserve the species; 2) “objective, measurable criteria” to evaluate a species’ progress toward recovery; and 3) estimates of the time and cost required to implement the plan.²²⁰ The Act does not impose a specific time limit on the Services for developing and implementing recovery plans and does not force them to undertake this intensive and complex process by themselves.²²¹ They may utilize external sources, such as “appropriate public and private agencies and institutions, and other qualified persons” to develop and implement recovery plans.²²² Further, the Services must give advanced public notice of any proposed new or revised recovery plan to allow for “public review and comment,” and they must consider all comments offered as a result.²²³

217. 16 U.S.C. § 1533(b)(3)(D)(i) (2003).

218. *Id.* § 1533(b)(3)(D)(ii).

219. *Id.* § 1533(f)(1).

220. *Id.* § 1533(f)(1)(B).

221. *See id.* § 1533(f)(3); LIEBESMAN & PETERSEN, *supra* note 138, at 25.

222. 16 U.S.C. § 1533(f)(2) (2003).

223. *Id.* § 1533(f)(1)(A).

The recovery plan development process would receive similar benefits from an RS that the Services' species recovery determinations would receive.²²⁴ The benefits to both processes would correspond because, like the determinations, they both tend to concentrate on species population abundance and trends.²²⁵ Because the plans serve as a means to achieve species recovery, they require "objective, measurable criteria" concerning the number of individuals comprising a species to function as a barometer of recovery success.²²⁶ Consequently, by helping the Services understand target goals for species abundance, an RS could make developing recovery plans more efficient. Additionally, the absence of strict timelines for developing recovery plans increases the likelihood that an RS would generate useful species information between the date that the Services list a species as threatened or endangered and the date they finalize the species' recovery plan.²²⁷

An RS's ability to supply information relevant to species progress under recovery plans could also make implementing the plans more efficient and allow them to respond more directly to the species' needs. Information compiled from monitoring species and from research is an essential tool for evaluating a species' status and needs.²²⁸ As the feedback from a reporting system would contribute to both research and monitoring, use of an RS could help the Services focus their initial plans toward addressing species and their needs with greater precision. At the same time, this information would be useful for revising existing recovery plans as a species' status and needs evolve. By identifying new populations or new threats to a population, an RS's data could indicate flaws in an existing recovery plan and provide a more timely and cost efficient means for revising it.²²⁹ This

224. See discussion *supra* Part III.A.2.

225. See Doremus, *supra* note 74, at 10440.

226. 16 U.S.C. § 1533(f)(1)(B)(ii) (2003); Patlis, *supra* note 11, at 61.

227. Compare LIEBESMAN & PETERSEN, *supra* note 138, at 25, with discussion *supra* Part III.A.1.

228. See Patlis, *supra* note 11, at 76-77 (detailing various aspects of the ESA's recovery planning provisions).

229. Judging from the legislative history surrounding the adoption of recovery plan provisions, which Congress recognized would entail the Services committing substantial time and resources toward development and implementation, it appears that the streamlining that an RS could provide would be a welcome addition to the process. See *Oregon Natural Res. Council v. Turner*, 863 F. Supp. 1277, 1283 (D. Or. 1994) (discussing the background of the recovery plan provisions and their burden on the Services).

would also simplify the process of preparing the required biennial congressional Committee reports and make the reports, which must detail the status of species under implemented recovery plans, more accurate.²³⁰ Adoption of a reporting system would also allow the Services to incorporate more comprehensive monitoring and research information into these reports.

In short, nearly every provision or procedural mechanism enumerated in section 4 of the ESA could derive at least some benefit from a reporting system's input. Although it seems improbable that initial determinations for species listings and initial designations of critical habitat would benefit significantly, if at all, RS-generated information could greatly benefit subsequent revisions to those listings and designations. By providing useful information about listed species and their critical habitat, a reporting system could help to simplify the section 4 implementation procedures, and therefore could allow the Services to use their resources more efficiently.

B. *Section 7 and the Benefits of a Reporting System*

Section 7 of the ESA represents a study in contrast. Of the section's two primary provisions²³¹ – the duty to conserve, imposed on all federal agencies under 7(a)(1),²³² and the consultation requirement, imposed on all federal activities under 7(a)(2),²³³ – only the latter has received the attention, resources, and respect that the Act intended. Indeed, while the consultation requirement has received significant attention for its ability to protect species against harm deriving from federal actions,²³⁴ the duty to conserve has for the most part been ignored and therefore does not occupy much of a substantive role in ESA implementation.²³⁵ As a result, *for now at least*,²³⁶ a reporting

230. See 16 U.S.C. § 1533(f)(3) (2003).

231. Section 7(a)(4) also imposes a duty to “confer” with federal agencies when an action “is likely to jeopardize the continued existence of [a candidate species].” 16 U.S.C. § 1536(a)(4) (2003). However, as with the candidate species monitoring program, even if the reporting system could be enforced, it is unlikely that it could substantially benefit conferrals on non-listed species. See *supra* note 150.

232. 16 U.S.C. § 1536(a)(1) (2003) (requiring all federal agencies “to utilize their authorities to carry out programs for the conservation of” listed species).

233. 16 U.S.C. § 1536(a)(2) (2003).

234. See ROHLF, *supra* note 104, at 105 (describing section 7(a)(2) as “[a]mong the ESA’s most significant provisions).

235. Fischman & Hall-Rivera, *supra* note 80, at 58.

236. However, this does not mean that section 7(a)(1) serves no purpose with regards to an RS. In fact, as this paper argues in Part IV.B., the duty to conserve

system could provide little benefit to section 7's duty to conserve. The consultation requirement, on the other hand, could benefit substantially from the input of a reporting system.

It is difficult to refute the importance of section 7's consultation requirement. In many ways, the consultation requirement functions as the chain that shackles federal agencies to the ESA's processes. The provision broadly mandates that:

Each Federal agency shall, in consultation with and with the assistance of [the Services], insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical habitat]²³⁷

In essence, this provision means that any federal agency, or "action agency," intending to engage in any activity must make a preliminary determination of whether the activity might impact a listed species.²³⁸

At first blush, the consultation requirement may appear to apply to only a narrow category of activities qualifying as federal actions. This is not the case, however, due to the breadth of actions which the consultation requirement contemplates. By requiring consultation for any action that "is authorized, funded, or carried out" by a federal agency, the process implicates a broad range of activities.²³⁹ Through the Services' regulations and various court decisions, the breadth of this range has started to come into focus. Federal agency activities which qualify as "agency ac-

likely provides the clearest source of authority for adopting a reporting system. Therefore, if a reporting system is adopted under section 7(a)(1), it could be seen as a bi-autogenetic—the duty to conserve would give life to the reporting system and in return the reporting system would give life to the duty to conserve. See discussion *infra* Part IV.B.

237. 16 U.S.C. § 1536(a)(2) (2003). In addition, section 7 establishes an early consultation requirement for prospective federal agency actions when requested by the applicant seeking a prospective permit or license, or the applicant "has reason to believe that a [listed species] may be present in the area affected by his project and that implementation of such action will likely affect such species." *Id.* § 1536(a)(3). The Services have devoted an entire handbook to addressing situations that involve private applications which constitute federal actions. UNITED STATES FISH AND WILDLIFE SERVICE & NATIONAL MARINE FISHERIES SERVICE, ENDANGERED SPECIES CONSULTATION HANDBOOK (1998) [hereinafter CONSULTATION HANDBOOK].

238. 50 C.F.R. § 402.14 (2004); *House v. United States Forest Service*, 974 F. Supp. 1022, 1028 (E.D. Ky. 1997).

239. *Id.*; J.B. Ruhl, *How to Kill Endangered Species, Legally: The Nuts and Bolts of Endangered Species Act "HCP" Permits for Real Estate Development*, 5 ENVTL. LAW. 345, 366 (1999).

tions” and thus require consultation include: granting licenses and permits,²⁴⁰ entering into leases and engaging in activities under them,²⁴¹ entering into or renewing contracts,²⁴² promulgating regulations,²⁴³ and conducting any activity that “directly or indirectly caus[es] modifications to the land, water, or air.”²⁴⁴ Also included are private party activities which receive direct federal funding or require permits or licenses from a federal agency.²⁴⁵ Judging from this extensive list, it is difficult to comprehend any significant land use activity that the consultation requirement would not reach.

Beyond actual consultations, section 7(a)(2) also places additional requirements on the decision-making process for agency actions. It specifies that all agencies involved in the consultation must use the best scientific and commercial data available to make the prescribed determinations in each step of the consultation process.²⁴⁶ There are two primary levels of consultation involved in this process for making determinations about impacts to listed species or critical habitat: 1) informal consultation, which may include the preparation of a biological assessment; and 2) formal consultation, which generally must produce a biological opinion. A reporting system could boost the performance of consultations at both levels.

1. Informal Consultation, Biological Assessments, and the Benefits of a Reporting System

At the outset of the consultation process, most action agencies choose to participate in informal consultation with the Services, which is an optional ESA process.²⁴⁷ One of the primary reasons for volunteering to engage in informal consultation is to determine preliminarily the possibility of listed species or critical habitat occurring in the proposed action area and, if the possibility exists, to evaluate any potential impacts the proposed action

240. 50 C.F.R. § 402.02; *Babbitt v. Sweet Home Chapter of Cmty. for a Great Oregon*, 515 U.S. 687, 692 (1995) (hereinafter *Sweet Home*); *Arizona Cattle Growers' Assoc. v. United States*, 273 F.3d 1229, 1238 (9th Cir. 2001).

241. 50 C.F.R. § 402.02 (2004); *Conner*, 848 F.2d at 1453.

242. 50 C.F.R. § 402.02 (2004); *Natural Resources Def. Council v. Houston*, 146 F.3d 1118, 1127 (9th Cir. 1997).

243. 50 C.F.R. § 402.02 (2004).

244. *Id.*

245. Jay Tutchton, *An Endangered Species Act Summary*, SG039 ALI-ABA 131, 138 (2001).

246. 16 U.S.C. § 1536(a)(2) (2003).

247. LIEBESMAN & PETERSEN, *supra* note 138, at 30.

poses to them.²⁴⁸ The preliminary determination which informal consultation produces can result in one of three possible outcomes. The first possibility is that the Services and the action agency determine that the proposed action “may affect,” but is “not likely to adversely affect” listed species or CH; in such a scenario, the consultation process is terminated.²⁴⁹ Under the second possible outcome, FWS may recommend measures for the action agency to apply “to avoid the likelihood of adverse effects” on any listed species or CH potentially occurring in the action area.²⁵⁰ Implementing these measures relieves the action agency of any further consultation requirements.²⁵¹ The third and final possible outcome is that the preliminary evaluation of the action area may reveal the necessity of engaging in the ESA’s more intensive formal consultation process.²⁵²

In some cases, FWS and NMFS may determine that additional information about onsite species or critical habitat is needed and advise the action agency to conduct a biological assessment (BA) to obtain this information.²⁵³ Although not an express requirement of the ESA or the Services’ regulations, except in the case of actions that constitute “major construction activities,” the action agency may prepare a BA to evaluate whether the proposed action is likely to have an adverse effect on listed species or critical habitat.²⁵⁴ To begin the BA process, the action agency typically requests information from the Services about any listed species or critical habitat that the proposed action might affect.²⁵⁵ If the Services’ response indicates that neither listed species nor CH “may be present,” there is no need for the action agency to prepare a biological assessment and the agency is excused from further consultation on the action.²⁵⁶ But if the Services advise the requesting agency that listed species or CH “may be present,” they will supply the agency with a list of potentially impacted species and critical habitat, as well as any other rele-

248. CONSULTATION HANDBOOK, *supra* note 237, at 3-1.

249. 50 C.F.R. § 402.13(a).

250. *Id.* § 402.13(b).

251. *Id.* § 402.13(a).

252. *Id.* § 402.13(a).

253. LIEBESMAN & PETERSEN, *supra* note 138, at 31.

254. 50 C.F.R. § 402.12.

255. *Id.* § 402.12(c). The action agency could choose instead to determine on its own the possibility of listed species or CH occurring in the area and submit its findings to the Services for approval. *Id.*

256. *Id.* § 402.12(d)(1).

vant information available.²⁵⁷ The action agency must use this information as the basis for conducting its biological assessment.²⁵⁸

If the BA reveals that “there are no listed species or critical habitat present that are likely to be adversely affected by the action and the [FWS] concurs,” the action agency has completed the consultation process and section 7(a)(2) requires no further investigation of the action’s effects.²⁵⁹ On the other hand, if the biological assessment reveals that the proposed action “may affect listed species or critical habitat,” the action agency must begin the more rigorous process of formal consultation.²⁶⁰ It is important to note, however, that before formal consultation comes into the picture – and especially if it never does – the processes involved in conducting informal consultations and biological assessments could benefit significantly from an RS’s information.

Section 7(a)(2) is designed to prevent federal agencies from violating the ESA by impermissibly taking listed species or destroying their habitat.²⁶¹ To this end, section 7 imposes the consultation requirement “to allow an agency to avail itself of ‘the expertise of Fish & Wildlife in assessing the impact of the proposed project and the feasibility of adopting reasonable alternatives.’”²⁶² Unfortunately, while the consultation requirement embodies an ambitious aspiration, in practice the provision has not lived up to Congress’ stated goal.²⁶³ This is particularly apparent with the informal consultation process.

Even a glancing review of the ESA’s history illustrates how FWS has typically made short shrift of the required consultation process by quickly finalizing action evaluations under the stunted informal consultation procedures. According to the agency’s official records, of the 186,000 federal actions that FWS reviewed between 1987 and 1995, only 2.7% actually went on to formal consultation.²⁶⁴ Given that at this stage the only finding required to subject an agency action to the more searching investigation

257. *Id.* § 402.12(d)(2).

258. *Id.* § 402.12(e).

259. *Id.* § 402.12(k).

260. *Id.* § 402.14.

261. *Arizona Cattle Growers’ Assoc.*, 273 F.3d at 1238.

262. *House*, 974 F. Supp. at 1028 (quoting *Lone Rock Timber Co. v. United States*, 842 F. Supp. 433, 440 (D.Or. 1994)).

263. Rizzo, *supra* note 39, at 866.

264. Tutchton, *supra* note 245, at 139.

under formal consultation is that the action “*may affect*” listed species or CH, it would be laughable to assume that all 97.3% of the disposed of actions failed to satisfy such a superficial benchmark.²⁶⁵ This conclusion appears inescapable when considered together with the standard articulated in section 7(a)(2), which precludes FWS from discharging an action from informal consultation unless it finds that the action “*is not likely to affect*” listed species or CH.²⁶⁶

That informal consultation is implemented with such disregard is a pity, for this administrative apathy allows federally-driven actions to impact otherwise protected species and critical habitat with impunity. This predicament is not without remedy, however. The utilization of a reporting system could help to inject actual consultation into the informal consultation process. In return, informal consultations could help to afford unknown populations of listed species and their habitat a better chance of recovery, shield both action agencies and private parties from unwittingly incurring ESA liability, and conserve the Services’ dwindling financial and professional resources. To be certain, informal consultations and biological assessments desperately need the assistance.

The informal consultation process, as currently conducted, reeks of agency misuse and administrative chicanery.²⁶⁷ Considering the importance with which Congress ascribed listed species protection under the ESA and the role it envisioned for section 7(a)(2) in achieving that protection, FWS’s rubberstamp implementation of informal consultations stands in marked contrast to the statute’s goals.²⁶⁸ One of the most dubious attributes of informal consultation is the actual degree of informality exercised under the process. Although the process may involve discussions and continuing correspondence between FWS and the action agency to determine the possible effects of a proposed action on listed species or critical habitat, more often than not informal

265. 50 C.F.R. § 402.14 (2004) (emphasis added).

266. *Id.* § 402.13(a) (emphasis added).

267. *See supra* text accompanying notes 264-66.

268. *See TVA v. Hill*, 437 U.S. at 173-74. Evaluating the statutory command of section 7, the Court noted that “[o]ne would be hard pressed to find a statutory provision whose terms were any plainer than those in §7. . . . This language admits of no exception.” *Id.* at 173. The Court further found in interpreting Congress’ intent under the ESA that “endangered species be afforded the highest of priorities.” *Id.* at 174.

consultations are limited to a few telephone conversations.²⁶⁹ Of course, this process of desktop decision-making renders it rather difficult for FWS officials to provide the informed, expert consultations envisioned by Congress, particularly if unknown populations of threatened or endangered species inhabit the action area. Unfortunately, then, unknown species populations hardly stand a chance under informal consultation.

On the rare occasion when an informal consultation actually indicates that known populations of listed species might inhabit the subject area, FWS may require the action agency to conduct a biological assessment to determine if the proposed action would likely affect those species.²⁷⁰ When this situation arises, unknown populations hold a glimmer of hope that the BA would uncover their presence. It is a rapidly fading glimmer, though, due to the potential for feckless implementation of the assessment under the Services' regulations. The regulations outline certain procedures for conducting biological assessments, including "onsite inspection . . . to determine if listed species . . . are present," consideration of "the views of recognized experts on the species at issue," and "review of the relevant literature and other information."²⁷¹ Collectively, these procedures seem capable of identifying new populations of listed species. In keeping with the trend of ESA implementation, however, the BA's framework appears more impressive than it actually is.

The debility in this process derives from the Services' BA regulations, which expressly specify that the contents of all biological assessments are a discretionary matter for the action agency to consider.²⁷² Thus the agency may decide to include each of these procedures, or none of them.²⁷³ The biological assessment incorporation provision embodies another consultation breakdown which originates in the joint regulations.²⁷⁴ This provision permits action agencies to recycle an already-used biological assessment in lieu of conducting a new assessment, so long as the previous action that resulted in the BA was "very similar" to the

269. Cassidy, *supra* note 107, at 193 n.136 (citing World Wildlife Fund, *Talk Is Cheaper Than We Think: The Consultation Process Under the Endangered Species Act* (1994)).

270. 16 U.S.C. § 1536(c)(1)(2003).

271. 50 C.F.R. § 402.12(f).

272. *Id.*

273. *Strahan v. Linnon*, 967 F. Supp. 581, 594 (D. Mass. 1997).

274. 50 C.F.R. § 402.12(g).

current proposed action.²⁷⁵ By allowing this type of corner-cutting, the incorporation provision could allow a BA that fails to take the step of actually looking for populations of different listed species in one action area to be applied to similar actions in other, unassociated action areas.²⁷⁶ Although the provision only permits an action agency to use incorporated assessments if the action occurs in the “same geographic area,” if “no new species have been listed . . . for the action area,” and if the agency supplements the old BA with “any relevant changes in information,” these limitations provide little insurance to unknown populations.²⁷⁷ They also provide little insurance for the agencies and any involved third parties against any taking of protected species that unwittingly results from the action.²⁷⁸ A reporting system could provide some of this much-needed insurance.

This insurance is necessary to fulfill the ESA’s requirements because the informal consultation process places the burden of uncertainty on listed species. With the underwhelming laxity characterizing informal consultations and the discretionary nature of biological assessments, the entire process rides on speculation. This contravenes the express language of the ESA, which requires action agencies to determine that a proposed action “is not likely” to impact listed species or their critical habitat.²⁷⁹ By its plain language then, section 7 consultation demands more of FWS and the action agencies than the mere stochastic optimism they currently display.

A reporting system could correct this situation by allowing the agencies to separate the wheat from the chaff during the consultation process. The system could bring an added measure of certainty to informal consultations and biological assessments by generating listed species-related information from the action area at issue. An RS could account for otherwise unknown populations of listed species, of which the action agency and FWS are unaware, and allow for up-front action to avoid adversely affecting the species. This could allow involved parties to avoid unknowingly incurring ESA liability. Similarly, even if an RS does not reveal the presence of previously unknown populations within the action area, the continuous updates generated under

275. *Id.*

276. *Id.*

277. *Id.* § 402.12(g)(1)-(3).

278. See discussion *infra* at notes 375-78.

279. 16 U.S.C. § 1536(c) (2003).

the system could provide a better understanding of a listed species' entire range and put the Services on notice that an action agency may need to survey for that species onsite.

Because a reporting system's information is culled from reports of environmental professionals and other interested parties, the use of the information for section 7 consultations would require little additional effort or commitment of agency resources outside of compiling and reviewing the submissions. In any event, the added security against ESA liability that incorporating this information into the process could provide would easily outweigh the nominal commitment of resources necessary to take advantage of the system. Thus, a reporting system could prove particularly useful during informal consultations. The system could also prove useful in the rare instances when FWS determines that the action agency should engage in the more rigid formal consultation process.

2. Formal Consultations, Biological Opinions, and the Benefits of a Reporting System

Boiled down, the formal consultation process amounts to a sharper edged version of its more informal counterpart. In general, unless FWS and the action agency concluded the process during informal consultation, the agency must engage in formal consultation when it determines that a proposed action "may affect listed species or critical habitat."²⁸⁰ In general, though, before formal consultation may begin, the action agency must finalize and submit a biological assessment to FWS.²⁸¹ Submission of this BA starts the clock on formal consultation, which, subject to some exceptions, lasts for only ninety days.²⁸² After submitting the BA, to initiate formal consultation the action agency must provide the Services with information concerning all listed species and CH that the proposed action may affect, as well as any other pertinent information.²⁸³ The formal consultation inquiry based on this information, as compared to the inquiry under informal consultation, can be quite thorough.

Because the submitted information provides a basis for the possibly critical formal consultation determination of an action's impacts, the Services require action agencies to provide the "best

280. 50 C.F.R. § 402.14(a) (2004).

281. *Id.* § 402.14(c).

282. 16 U.S.C. § 1536(b)(1)(A) (2003).

283. 50 C.F.R. § 402.14(c) (2004).

scientific and commercial data available *or which can be obtained* during the consultation.”²⁸⁴ The “or which can be obtained” standard is unique to the formal consultation process; it is found nowhere in the ESA or elsewhere within the Services’ joint regulations.²⁸⁵ Although the Services do not provide a definition, their regulations effectuate this more stringent standard by specifying that the action agency may include results compiled from surveys and studies that the agency has conducted.²⁸⁶ Further, if FWS and NMFS feel they need more information to make a proper determination of the proposed action’s impacts, they may request the action agency to “obtain additional data to determine how or to what extent the action may affect listed species or critical habitat.”²⁸⁷ Interestingly, the regulations specify that, if the collection of additional information is to take place, the action agency must voluntarily subscribe to the Services’ recommendation to collect it; otherwise consultation continues without this important information.²⁸⁸ If the action agency does not agree with the recommendation, the Services simply make do with the best scientific and commercial data available to them at the time.²⁸⁹

Using the information before them, whether supplemented or not, the Services have forty-five days to submit to the action agency a biological opinion (BO), in which they determine if “the action, taken together with the cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.”²⁹⁰ To make this determination, the Services must first review the relevant information the action agency provided; during this review, they may, but by no means are required to, conduct an onsite inspection.²⁹¹ Based on their review, the Services then evaluate the status of any listed species or critical habitat the action may impact.²⁹² Next, the Services analyze these impacts – including

284. *Id.* § 402.14(d) (emphasis added).

285. *See* 16 U.S.C. §§ 1531-1544 (2003); *see also* 50 C.F.R. §§ 401-453 (2004).

286. 50 C.F.R. § 402.14(d) (2004).

287. *Id.* § 402.14(f).

288. *Id.*

289. *Id.*

290. *Id.* § 402.14(g)(4).

291. *Id.* § 402.14(g)(1).

292. *Id.* § 402.14(g)(2).

immediate, direct, indirect, and cumulative impacts – to determine the effect on listed species and CH.²⁹³

If the analysis indicates that the action will not likely jeopardize any listed species' continued existence or result in the adverse modification of critical habitat, the Services issue a "no jeopardy" opinion.²⁹⁴ This type of biological opinion ends the consultation process.²⁹⁵ On the other hand, if the analysis indicates that the proposed action is likely to jeopardize a listed species' existence or adversely modify critical habitat, the Services issue a "jeopardy" opinion detailing the anticipated impacts of the action.²⁹⁶ In this type of biological opinion, the Services usually must indicate any "reasonable and prudent alternatives" to the proposed action that may avoid jeopardizing the species or adversely modifying critical habitat.²⁹⁷ Although section 7(a)(2) does not obligate action agencies to adopt these alternatives, most choose to adopt at least some part of them to avoid future ESA liability resulting from the taking of species or from impacting CH.²⁹⁸

Of course, even if an action agency adheres to the proposed reasonable and prudent alternatives, listed species takings and CH destruction may still occur. To shield the agency from ESA liability the Services may issue an "incidental take" statement (ITS), which attaches to a jeopardy opinion and allows the agency, subject to specific terms and conditions, to take limited numbers of listed species without incurring ESA liability.²⁹⁹ Under an ITS, an agency must report the progress of its action, including any takings that occur, to the Services so that they may monitor cumulative impacts to the listed species identified in the statement.³⁰⁰ This allows incidental take statements to limit listed species takings, monitor any takings that do occur, and evaluate the impact of these takings on the entire population of a species.

293. *Id.* § 402.14(g)(3). The joint regulations define "jeopardy" as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." *Id.* § 402.02.

294. *Id.* § 402.14(h)(3).

295. *Id.* § 402.14(i)(3).

296. *Id.* § 402.14(h)(3).

297. *Id.*

298. 16 U.S.C. §§ 1536(b)(4)(C)(iv), 1538 (2003); LIEBESMAN & PETERSEN, *supra* note 138, at 35.

299. 16 U.S.C. §§ 1536(b)(4)(C) (2003).

300. 50 C.F.R. § 402.14(i)(3) (2004).

Nonetheless, the Services recognize that this technique, and in fact the entire formal consultation process, is not infallible. As a result, they require the action agency to re-engage in formal consultation whenever new information arises that is beyond the scope of the original consultation.³⁰¹ Unfortunately however, such a return to formal consultation can prove costly to both the Services and the reengaged agency. This is just one of the several glitches intrinsic to formal consultation that an RS could repair.

Another problem is that, much like informal consultation, the Services' track record for implementing formal consultation is less than inspiring. Of the 5,046 agency actions submitted for formal consultation with the Services between 1987 and 1995, only 600 – roughly 12% – ended in jeopardy biological opinions.³⁰² Under the plain language of the ESA, this means that the Services determined that only 12% of the proposed federal actions subjected to the scrutiny of formal consultation were likely to “jeopardize the continued existence of any [listed species] or result in the destruction or adverse modification of [critical habitat].”³⁰³ As unlikely as these odds may already appear, it gets worse, because this calculation does not account for the more than 180,000 federal actions that the Services disposed of during informal consultation.³⁰⁴ Thus, when every federal action submitted for consultation with the Services is included in the equation, a telling but preposterous picture of the consultation process emerges—a mere 0.03% of the actions were determined to have a likely effect of jeopardizing any listed species' existence or result in destruction or adverse modification of critical habitat.³⁰⁵ This seems all but impossible.

The apparent neglect of threatened and endangered species under the Services' formal consultation process is even more egregious than it is with informal consultations. This is because, with formal consultations, the action agencies have already committed their resources to the consultation; there is no escaping the consultation framework without complying with its procedures. Consequently, this doctrinal corral likely displaces any perfunctory tendencies. In addition, the sole purpose of the Ser-

301. *Id.* § 402.16.

302. Tutchton, *supra* note 245, at 139.

303. 16 U.S.C. § 1536(a)(2) (2003).

304. *See* Tutchton, *supra* note 245, at 139 (indicating that, of the 186,000 federal actions reviewed by the Services under section 7 consultation, only 5,046 were required to continue on to formal consultation).

305. *See id.*

vices is to protect the biological resources of the United States, meaning that they have no conflict of interest in carrying out their duties.³⁰⁶ This leaves only two possibilities that can logically account for the discrepant results of formal consultation: 1) there is a procedural problem inherent in formal consultation; or 2) there is an implementation problem on the part of the Services. A reporting system could help to correct either of these problems or both simultaneously.

a. Correcting Formal Consultation's Procedural Problems

As the above review of formal consultations illustrates, there is ample room to improve the process. For several reasons, an RS could provide the needed improvements. First, because the ESA permits only ninety days for formal consultations, the Services must complete the evaluation-intensive process as expeditiously as possible.³⁰⁷ This might work in situations in which the action area actually contains no listed species or the Services are aware of every listed species population onsite. But such a winged approach is not practical for situations involving unknown populations. This is particularly true in light of the complete discretion with which the Services' regulations entrust action agencies for species investigations and the similar discretion that the regulations afford the Services.³⁰⁸

The Services appear to have noticed this consultation weakness and defined several additional remedial procedures in their *Endangered Species Consultation Handbook*, including a review of the "biological information on the impacted species, their life history, population dynamics, habitat, status and distribution, and other factors."³⁰⁹ While such additions, if routinely executed, could help reform interagency consultations, they are ar-

306. *Testimony on the Endangered Species Act Section 7 Consultation Process Before the Fisheries, Wildlife and Water Subcomm. of the Senate Comm. on Environment and Public Works*, 108th Cong. (June 25, 2003) (statement of John Kostyak, Senior Counsel, National Wildlife Federation).

307. 16 U.S.C. § 1536(b)(1)(A) (2003).

308. *See e.g.*, 50 C.F.R. § 402.14(c)-(f) (2004) (specifying that the contents of the action agencies' initial submission of information to the Services must include "[r]elevant reports, including any environmental impact statement, environmental assessment, or biological assessment prepared") (emphasis added); *see also id.* § 402.14(g) (indicating that the Services' responsibilities during formal consultation include the review of information provided by the action agency, but adding that "[s]uch review may include an on-site inspection of the action area") (emphasis added).

309. CONSULTATION HANDBOOK, *supra* note 237, at 4-14 to 4-31.

ticated only in the *Consultation Handbook*, which is merely a non-binding guidance document.³¹⁰ This highlights an implementation flaw underlying the formal consultation process, which allows reviews of federal actions to conclude without resolving precisely which listed species the action area may or may not contain.³¹¹ The ramifications of this flaw can be especially far-reaching because, as the Supreme Court has determined, biological opinions constitute final agency actions subject to judicial review under the highly deferential arbitrary and capricious standard.³¹² By providing information about listed species and their ranges, an RS could offset this weakness.

Second, this same information could help protect unknown listed species populations by fostering more comprehensive consideration of the potential impacts of federal actions. Even without the ninety-day time limit imposed on formal consultations, the process would still suffer from a lack of information concerning the precise composition of species inhabiting an action area. Because the Services are not required to set foot in the area, they typically rely on information from action agencies and their own listed species expertise. Unfortunately, while the Services' expertise regarding threatened and endangered species is undeniably impressive, it is not perfect. New discoveries of listed species populations occur regularly, and often without the knowledge of FWS and NMFS.³¹³ Without access to the most current popula-

310. See Michael J. Brennan et al., *The Endangered Species Act, Square Pegs in Round Holes: Application of the "Best Scientific Data Available" Standard in the Endangered Species Act*, 16 TUL. ENVTL. L.J. 387, 399 & n.65 (2003) (citing other similar guidance documents and agency handbooks that courts have deemed to be non-binding).

311. See *Pacific Coast Fed. of Fisherman v. United States Bureau of Reclamation*, 138 F. Supp. 2d 1228, 1246 (N.D. Cal. 2001) (explaining that, when an action agency commences an action before determining whether the action will affect listed species or CH, the agency "failed to insure that its action 'was not likely to jeopardize the continued existence of any [listed species] or result in the destruction or adverse modification' of the critical habitat of such species"). Although the district court here addressed circumstances where the agency failed properly to complete the consultation process, the same logic applies when the agency fails to determine the composition of listed species in an action area.

312. *Bennett v. Spear*, 520 U.S. 154, 178 (1997).

313. Telephone Interview with Martin Miller, Chief, United States Fish & Wildlife Service – Region 5, Division of Threatened and Endangered Species (Apr. 27, 2004) (noting the frequency of new species information discoveries that FWS often does not know about because state and local governments are sometimes wary about disclosing species locations to a federal agency that is subject to Freedom of Information Act requests); Telephone Interview with René Hypes, Virginia Division of Natural Heritage, Department of Conservation & Recreation (Apr. 27, 2004) (dis-

tion and range data for each listed species, the Services unavoidably relegate formal consultation from a process rooted in conservation to a process based on conjecture.

This has dangerous implications for listed species, the Services, the action agencies, and any third parties involved with the action. By failing to take the proper steps during the consultation process to identify which species might inhabit the action area, the Services could unintentionally – yet foreseeably – harm listed species or critical habitat. Even if the Services release a proposed action from the consultation process with a no jeopardy BO indicating that the action is not likely to jeopardize listed species or CH, this does not immunize any party from ESA takings liability.³¹⁴

To confer such immunity under section 7(a)(2), the Services typically must issue incidental take statements for unintentional impacts.³¹⁵ However, an ITS offers no protection from liability when a species is not known to occur onsite. According to the Court of Appeals for the Ninth Circuit, the Services cannot issue an ITS for any sort of prospective taking.³¹⁶ Rather, the Services can only issue an ITS when they determine that the taking of a listed species “will occur.”³¹⁷ As a result, the parties associated with the action can be liable for any taking that occurs, unless the formal consultation specifically contemplated its occurrence and issued an ITS to allow for it. An RS could offset this vulnerability by producing more information about regional species and the action area, thus providing greater insurance that the consul-

curring the relative frequency of listed species-related discoveries and noting that, although the Services coordinate continuously with the Natural Heritage database, local and state governments tend to apply the information in more visible responses).

314. See 16 U.S.C. § 1536(o)(2) (2003) (specifying that under section 7 of the ESA, the only procedures which can negate a taking and its accompanying liability are an express exemption or an incidental take statement). If the Services authorize an exemption for a particular agency action, it functions as “a permanent exemption with respect to all endangered or threatened species for purposes of completing such agency action – regardless of whether the species was identified in the biological assessment . . .” *Id.* § 1536(h)(2)(A)(i).

315. *Id.* § 1536(b)(4). In response to the injunction of the Tellico Dam project in *TVA v. Hill*, Congress amended the ESA by providing for an exemption where there are no reasonable and prudent alternatives. *Id.* § 1536(h). However, this type of taking immunity is beyond the scope of this article.

316. *Arizona Cattle Growers' Assoc.*, 273 F.3d at 1244. The court explained, “it would be nonsensical to require the issuance of an Incidental Take Statement when no takings cognizable under Section 9 are to occur.” *Id.* at 1242.

317. *Id.*

tation process has accounted for all listed species that might inhabit the area.

The final procedural problem in formal consultation that an RS could help to correct arises from the reinitiation of the consultation process.³¹⁸ The Services require action agencies to reinitiate consultation in several situations, including when “new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.”³¹⁹ This procedure contemplates the discovery of previously unknown listed species populations within the action area. However, it offers no up-front protection to the species or their habitat from impacts of the action and likewise offers no up-front protection to the involved parties from ESA liability.³²⁰ Of course, when the action agency re-engages in formal consultation, the Services then have the option of issuing an ITS to account for any future impacts that may befall the listed species.³²¹ However, until they issue an ITS, any taking that occurs under the action violates the ESA and subjects all involved parties to liability.³²²

A reporting system could benefit this process by providing a more certain means for verifying the accuracy of initial consultations. This could reduce the time and energy inefficiently directed toward repeating the consultation process. Moreover, an RS could help both to reduce the involved parties’ vulnerability to ESA liability and to husband resources for species conservation. An RS could thus provide a useful tool for improving procedural aspects of the formal consultation process and inject a greater degree of certainty into findings that actions will “not likely jeopardize the continued existence of any [listed species] or result in the destruction or adverse modification of [critical habitat].”³²³ An RS could likewise improve the Services’ implementation of the process.

318. 50 C.F.R § 402.16.

319. *Id.* § 402.16(b).

320. *See id.*

321. 16 U.S.C. § 1533(b)(4) (2003).

322. *See id.* § 1533(o)(2) (specifying that under section 7 of the ESA, the only procedures which can negate a taking and its accompanying liability are an express exemption or an incidental take statement).

323. *Id.* § 1536(a)(2).

b. *Correcting Problems with the Implementation of Formal Consultation*

As the Services inarguably possess a strong body of scientific expertise in the realm of threatened and endangered species, any consultation problems traceable directly to FWS or NMFS implementation most likely are the product of deficient resources. A lack of funding has plagued the Services' execution of the ESA for quite some time.³²⁴ Regrettably, it does not appear that Congress will remedy the Services' funding problems in the foreseeable future. As John Kostyak, Senior Counsel for the National Wildlife Federation, recently explained to the Senate, "[a]lthough ESA funding has increased in recent years, funding levels remain ridiculously low considering the enormity and complexity of the challenges facing the agencies."³²⁵ Similar to its benefit to informal consultation, an RS could enhance the formal consultation process without further depleting the Services' strained budgets.³²⁶

Put simply, an RS could generate additional species and habitat information that FWS and NMFS could incorporate into their consultations with action agencies to determine the likelihood of jeopardy. Because this information comes from sources outside of the Services, the only accompanying financial burden would be the expenditure of resources to compile and review RS submissions and to analyze the information for the region surrounding the action area. This is a small price to pay, given the added protection the RS could provide to the entire consultation process.

C. *Section 9 and the Benefits of a Reporting System*

Under section 9 of the ESA, Congress appears to have adopted the old adage that the best offense is a good defense. Section 9 embodies the ESA's predominant shield as well as its sword. This section acts as a shield because it proscribes certain conduct in order to protect at-risk species and their habitat, and thus attempts to safeguard the species from fading into extinction.³²⁷ It also constitutes the Act's sword because, through its conduct prohibitions, violations of the section open the door to

324. See *supra* notes 210-211 and accompanying text.

325. Testimony on the Endangered Species Act Section 7 Consultation Process, *supra* note 306.

326. See discussion *supra* p. 64.

327. See 16 U.S.C. § 1538 (2003) (establishing the ESA's taking prohibition).

civil or criminal penalties under section 11 of the statute.³²⁸ Although section 9 exposes a broad range of activities to ESA compliance, some commentators contend that, in practice its provisions contain more bark than bite.³²⁹ If this is in fact true, a reporting system could offer some means for salvaging the section's intended grit. By filling existing data gaps in listed species information, an RS could improve the Services' protection of species from unintentional takings. This, in turn, would help protect prospective violators of the ESA from incurring civil or criminal liability.

1. Prohibited Acts Under Section 9

The provisions of section 9 establish a series of prohibitions which apply to the conduct of any party subject to federal jurisdiction, including private parties and public entities.³³⁰ For purposes of this analysis, the primary thrust of section 9 resides in the taking prohibition.³³¹ This prohibition forbids "any person" from taking "any species of fish or wildlife . . . within the United States or the territorial sea of the United States, [and] . . . upon the high seas."³³² The ESA broadly defines the term "take" as: "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct."³³³ Of these prohibited activities, two in particular – those that involve harming and those that involve harassing endangered species – have sparked considerable debate.

Within the meaning of a prohibited take under the ESA, the joint regulations of FWS and NMFS define "harm" to mean "an act which actually kills or injures wildlife."³³⁴ The Services further specify that the offending act encompasses "significant

328. *See id.* §§ 1540(a)(1), 1540(b)(1) (2003) (articulating the ESA's penalty provisions for violations of section 9).

329. *See e.g.*, Bean, *supra* note 10, at 10703, 10709 (noting that "[t]he Act's taking prohibition has teeth, but not many"); Rizzo, *supra* note 39, at 869 (discussing the inabilities of section 9 to keep pace with land development).

330. 16 U.S.C. § 1538(a)(1) (2003).

331. *See id.* (articulating the prohibition against taking endangered species). Section 9 also prohibits other forms of conduct, including the exporting or importing of species, activities implicating interstate commerce of species, and commerce involving species that have already been taken. *Id.* § 1538(a)(1). While these prohibitions also provide for important species protection, their substance is generally beyond the scope of this analysis.

332. *Id.* § 1538(a)(1)(B)-(C).

333. *Id.* § 1532(19).

334. 50 C.F.R. § 17.3.

habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering.”³³⁵ Although a finding of harm may be prospective, to establish that an act amounts to a taking, its effects must be validated by “actual evidence, which may be in the form of scientific studies.”³³⁶ The primary controversy under the definition of harm to endangered species traditionally arose under the “habitat modification or degradation” prong, which critics challenged as comprehending an overly extensive range of activities.³³⁷

The Supreme Court addressed this allegation once and for all in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, in which the Court upheld the Services’ inclusion of habitat modification or degradation within its definition of harm.³³⁸ The *Sweet Home* Court reasoned that the ESA’s use of “harm” contemplates injuries to endangered wildlife, regardless of whether they are exacted directly or indirectly.³³⁹ The Court noted that it must faithfully adhere to Congress’ intent under section 9 because the taking prohibition imposes a broader scope and more demanding requirements than the mandates set forth in Section 7.³⁴⁰ Importantly, however, the Court observed a limitation on takings resulting from indirect harm, namely that such takings cannot be found when an activity causes only minimal or unforeseeable harm.³⁴¹

The other controversy surrounding Section 9’s “taking” definition derives from the Services’ interpretation of the conduct that constitutes endangered wildlife harassment. For purposes of finding a species taking, the Services define “harass” to mean “an intentional or negligent act which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.”³⁴² This definition is relatively liberal compared to the Services’ definition of “harm” and is generally understood to incorporate a much wider range of

335. *Id.*

336. *House*, 974 F. Supp. at 1029 (citations omitted).

337. *Sweet Home*, 515 U.S. at 692-93; 50 C.F.R. § 17.3; LIEBESMAN & PETERSEN, *supra* note 138, at 40-41.

338. *Sweet Home*, 515 U.S. at 703.

339. *Id.* at 697-98.

340. *Id.* at 703.

341. *Id.* at 700.

342. 50 C.F.R. § 17.3 (2005).

activities that could potentially interfere with species or their habitat.³⁴³ However, to date no court has resolved a species taking claim based *solely* upon a determination that an action harassed endangered wildlife.³⁴⁴ Even so, this has not quieted the debate over potential implications of the Services' interpretation of species takings by harassment.³⁴⁵

These controversies have been fueled in part by the fact that the section 9 prohibitions regulate the activities of such a wide array of actors. The ESA specifies in section 9 that the prohibitions apply to "any person subject to the jurisdiction of the United States." Section 9 further expands this scope by adding that it is also "unlawful for any person . . . to attempt to commit, solicit another to commit, or cause to be committed, any offense" designated within the section.³⁴⁶ While these provisions evidence the broad dimensions of the section 9 prohibitions, the ESA removes any doubt as to their universal application by defining "person" to include "an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State."³⁴⁷ As a result, section 9 and its prohibitions affect almost every conceivable party within the United States as well as any actions they might wish to engage in directly or indirectly.

In addition to the breadth of the taking prohibition, there are several other notable features of section 9. First, the ESA's taking prohibition does not apply to any threatened species.³⁴⁸ This might initially appear to represent a mammoth-sized hole in the

343. The House Report accompanying the drafting of the ESA explained that the harassment prohibition permits the Services "to regulate or prohibit the activities of birdwatchers where the effect of those activities might disturb the birds and make it difficult for them to hatch or raise their young." H.R. REP. NO. 93-412, 93d Cong., 1st Sess. (1973); see *House*, 974 F. Supp. at 1029 (mentioning that "to prove a 'significant risk of harm' under the definition of 'harass', which may constitute 'take', requires a lower degree of certainty of harm than under the definition of 'harm'") (citing *Am. Bald Eagle v. Bhatti*, 9 F.3d 163, 167 n.5 (1st Cir. 1993)).

344. BEAN & ROWLAND, *supra* note 6, at 224 (citing *Marbled Murrelet v. Pac. Lumber, Co.*, 880 F. Supp. 1343, 1365-67 (N.D. Cal. 1995)) (noting that cases addressing a species taking that might implicate the "harass" prohibition often are disposed of under a finding of "harm" to the species).

345. See ROHLF, *supra* note 104, at 70 (describing controversies that have arisen from the definition of harass, including activities involving whale watching boats and low flying helicopters above densely populated listed species habitat).

346. 16 U.S.C. § 1538(g) (2003).

347. *Id.* § 1532(13).

348. See *id.* § 1538(a)(1), (a)(2); Ruhl, *supra* note 54, at 1116.

ESA; however, the Services have taken steps to reduce its impact on at-risk species conservation efforts. While Congress did not extend the protections of the taking prohibition to threatened species, in section 4(d) of the ESA it did supply the Services with express authority to adopt via formal rulemaking any additional species conservation regulations they deem "necessary and advisable."³⁴⁹ Under this authority, FWS has promulgated a blanket regulation extending section 9's taking prohibition to include all threatened species under its dominion unless the agency indicates otherwise in the form of a rule expressly precluding the applicability of the taking prohibition to a particular threatened species.³⁵⁰ NMFS, on the other hand, has chosen to extend the taking prohibition to the threatened species under its jurisdiction only on a case-by-case basis.³⁵¹

The second notable feature in section 9 is that, in prohibiting various forms of conduct which impact listed species, it distinguishes between animals and plants.³⁵² In fact, for plants, the ESA imposes no taking prohibition at all.³⁵³ In place of a taking prohibition, Congress substituted a list of several acts that violate the ESA by impacting endangered plants.³⁵⁴ Under this list, section 9 prohibits any party from impacting endangered plants on federal lands by removing, maliciously damaging, or destroying the species.³⁵⁵ Endangered plants inhabiting areas outside of federal jurisdiction, however, do not enjoy this same level of protection, as section 9 bars only removing, damaging, or destroying plant species in such areas in knowing violation of a state law or regulation.³⁵⁶ Unfortunately, just a handful of states have enacted specific laws and regulations to protect endangered plants.³⁵⁷ In addition, as with animal species, section 9's protections apply only to endangered species of plants unless the Ser-

349. 16 U.S.C. § 1533(d) (2003).

350. 50 C.F.R. §§ 17.31, 17.71 (2004).

351. See 50 C.F.R. pt. 223 (providing individually tailored NMFS rules that extend section 9 protections to particular threatened species).

352. 16 U.S.C. § 1538(a)(1), (a)(2) (2003). This distinction is rooted in traditional common law notions of property rights, which deemed plants and trees to be constituents of the owner's fee simple estate. Fischman & Hall-Rivera, *supra* note 80, at 64.

353. 16 U.S.C. § 1538 (2003).

354. *Id.* § 1538(a)(2).

355. *Id.* § 1538(a)(2)(B).

356. *Id.*

357. See Ruhl, *supra* note 54, at 1124, n.77 (listing Kentucky, Minnesota, New Mexico, Vermont, and Michigan as states that have instituted specific regulations or laws to protect endangered plants); Fischman & Hall-Rivera, *supra* note 80, at 65 n.91 (noting that Guam and the Virgin Islands have also enacted these protections).

vices specifically extend the protections to threatened species.³⁵⁸ The result of the ESA's disparate treatment of listed plants and animals is that "plants simply fall through the cracks of many ESA programs despite their important ecological functions and economic and aesthetic values."³⁵⁹

One final noteworthy issue under section 9 is the Services' discretionary enforcement of its prohibitions. As a practical matter, FWS and NMFS typically will not prosecute parties who report accidental takes of listed fish and wildlife.³⁶⁰ This practice reflects a policy decision that most parties will not report accidental takings for fear of ESA liability, and that prosecuting those exhibiting the moral fiber to report such accidents would have a chilling effect on future reports.³⁶¹ The Services also provide exemptions for takings of listed species under incidental take statements (ITSs) and incidental take permits (ITPs).³⁶² The rationale underlying ITSs and ITPs is that, because the impact is incidental to an otherwise lawful activity and will not likely put the species at risk of extinction, it does not fall within the ambit of section 9's taking prohibition.³⁶³ However, some disagreement exists among commentators and practitioners as to the actual hardships that these mechanisms impose on listed species and affected parties.³⁶⁴ These uncertainties represent just some of the issues with section 9 that a reporting system could help to resolve.

2. The Benefits of a Reporting System to Section 9's Provisions

Despite its intended far-reaching applicability, nearly thirty-five years of ESA implementation have demonstrated that the taking prohibition has not proven especially successful at recov-

358. 16 U.S.C. §§ 1533(d), 1538(a)(2)(E) (2003).

359. Ruhl, *supra* note 54, at 1124.

360. Bean, *supra* note 10, at 10707. This generally does not apply in the case of listed plant takings because the ESA requires intentional impacts to plants on federal lands or knowing violation of state laws in other areas to find a violation. See *supra* text accompanying notes 354-59. Consequently, accidental impacts to listed plants do not violate the ESA.

361. Bean, *supra* note 10, at 10707.

362. 16 U.S.C. §§ 1536(b), (o) (2003) (setting forth the taking exemption for ITSs), 1539(a)(2)(B) (2003) (setting forth the taking exemption for ITPs); see also *supra* text accompanying notes 315-17 (highlighting the improvements to ITS execution that an RS could provide).

363. 16 U.S.C. § 1539(a)(2)(B) (2003); 50 C.F.R. § 402.14(i) (2004).

364. Houck, *supra* note 140, at 355.

ering listed species populations in sufficient numbers.³⁶⁵ Some commentators believe this ineffectiveness stems partially from ongoing conflicts between land development and species protection.³⁶⁶ As an offshoot of this conflict, in many instances the Services have been unable to ensure species conservation under section 9 because frequently the Services and the landowners lack the requisite knowledge of the listed species occurring on a project site.³⁶⁷ Thus, while some ESA experts note that section 9 establishes “one of the most significant protections afforded a species under the ESA,”³⁶⁸ others believe that the “prohibition alone cannot effectively address many of the most serious threats to endangered species.”³⁶⁹ It is apparent then that section 9’s prohibition comprises a durable plan for species conservation, but it is not foolproof. By filling data gaps in listed species information and increasing awareness of the presence of listed species, an RS could provide the upgrade that section 9 needs to become more effective and reliable.

3. A Reporting System’s Benefits to the Taking Prohibition

The sweeping applicability of the taking prohibition is one of section 9 and the ESA’s greatest assets.³⁷⁰ Congress intended to define “take” within the ESA “in the broadest possible manner to include every conceivable way in which a person can ‘take’ or attempt to ‘take’ any fish or wildlife.”³⁷¹ The prohibition does not merely apply to entire populations of endangered species; it protects every individual member of every endangered fish and wildlife species.³⁷² As an added measure of protection, Congress also sought to remove the threats of apathy and carelessness toward species by imputing a taking violation on any party that harasses an endangered species, regardless of whether the har-

365. Eric Helmy, *Teeth for a Paper Tiger: Redressing the Deficiencies of the Recovery Provisions of the Endangered Species Act*, 30 ENVTL. L. 843, 844 (2000).

366. Rizzo, *supra* note 39, at 869; see Holly Doremus, *Preserving Citizen Participation in the Era of Reinvention: the Endangered Species Act Example*, 25 ECOLOGY L.Q. 707, 712 (1999) (noting the improperly implemented incidental take permits and habitat conservation plans “pave the road to extinction”).

367. See Bean, *supra* note 10, at 10706.

368. LIEBESMAN & PETERSEN, *supra* note 138, at 39.

369. Bean, *supra* note 10, at 10709.

370. John P. Ernst, *Federalism and the Act*, in BALANCING ON THE BRINK, *supra* note 4, at 98, 104.

371. S. REP. NO. 93-307, at 7 (1973), *reprinted in* 1973 U.S.C.C.A.N. 2989, 2995.

372. Tutchton, *supra* note 245, at 140.

assessment is intentional or not.³⁷³ Consequently, the ESA does not recognize any defense to taking liability for parties that are ignorant, misinformed, or simply indifferent to the impacts of their actions on protected species.³⁷⁴ Thus, section 9's prohibition typically serves as a substantial deterrence to the taking of a protected species, provided that an actor is aware of the species' presence.

Oftentimes in practice, however, without a full understanding of an area and all of the species inhabiting it, an actor does not realize until after a taking has occurred that a particular species lives onsite. By unwittingly taking any member of an endangered fish or wildlife species, an actor automatically becomes vulnerable to ESA liability. This vulnerability is particularly acute when the Services and the regulated community lack sufficient knowledge of listed species because, like ITSs under section 7's consultation provisions, incidental take permits are unavailable for species that are not known to occur on a property.³⁷⁵ Moreover, not only is the person who exacted the taking exposed to liability, but so is every other party involved in the action.³⁷⁶ This staggeringly extensive liability implicates any government entity at any level that allows or authorizes an act that causes a taking. Such liability also covers project financiers, business partners, and any other party with a tangible interest in the action.³⁷⁷ Government entities are particularly susceptible because their ESA liability may arise vicariously for takings resulting from activities that

373. H.R. REP. NO. 93-412, at 11 (1973).

374. See 16 U.S.C. § 1540(a)-(b) (2003) (providing standards of liability for civil and criminal violations under the ESA, but highlighting the only affirmative defense against taking liability as being a good faith belief in the need for self defense).

375. During the 1982 amendments, Congress made this conclusion certain: "By use of the word 'incidental' the Committee intends to cover situations in which it is known that a taking will occur if the other activity is engaged in but such taking is incidental to, and not the purpose of, the activity." H.R. REP. NO. 97-567, at 31 (1982), *reprinted in* 1992 U.S.C.C.A.N. 2807, 2831; *see also* 50 C.F.R. § 13.42 (providing that "[t]he authorization on the face of a permit which sets forth specific times, dates, places, methods of taking, numbers and *kinds of wildlife or plants*, location of activity, authorize certain circumscribed transactions, or otherwise permit a specifically limited matter, are to be strictly construed and shall not be interpreted to permit similar or related matters outside the scope of strict construction") (emphasis added); *see also supra* text accompanying notes 316-17.

376. Ruhl, *supra* note 239, at 372-76.

377. *Id.*; *see also Arizona Cattle Growers' Assoc.*, 273 F.3d at 1238; *Strahan v. Cox*, 127 F.3d 155, 162-64, 168 (1st Cir. 1997).

they affirmatively authorize or support, in addition to takings that occur as a consequence of their inaction.³⁷⁸

As a result, while the taking prohibition constitutes one of the ESA's greatest assets, it also dangles above the heads of the regulated community like the sword of Damocles. In fact, given the current lack of knowledge about listed species that plagues their conservation, the taking of protected species and the far-reaching application of ESA liability may still easily occur despite section 9's intended deterrence.³⁷⁹ A reporting system could help to prevent these undesirable outcomes.

By providing additional information that enhances the understanding of species and their populations, an RS would enable the Services to better protect listed species. FWS and NMFS would be able to gain a more complete picture of the species' ranges and habitats, and thus develop a better idea of which species to look for in any given location. This would allow the Services to provide more accurate notifications to the regulated community, which in turn would allow regulated parties to avoid liability under the ESA by carefully monitoring or curbing conduct that may impact protected species.³⁸⁰

Thus, in the end, a reporting system could benefit many of the mandatory sections and provisions comprising the ESA. Its input could simultaneously further both the purposes of the ESA by protecting listed species from extinction and the interests of the regulated community by allowing them to avoid ESA liability for taking at-risk species. An RS could also streamline the Services' procedures, thereby maximizing the efficient use of government resources and enhancing their abilities to fulfill their statutory duties. With such incredible untapped potential embodied within an RS, it is fortunate that Congress endowed the Services with ample authorization to create and implement an RS under the ESA.

378. 16 U.S.C. § 1538(g) (2003); *Coxe*, 127 F.3d at 163; *United States v. Town of Plymouth*, 6 F. Supp. 2d 81, 90 (D. Mass. 1998).

379. *See Coxe*, 127 F.3d at 165 (noting that, because "a single injury to one [species member] is a taking under the ESA, efforts to minimize such [takings] are irrelevant" for purposes of liability if a taking occurs).

380. *See Ruhl*, *supra* note 239, at 364 (noting that ESA liability subjects every party to taking liability even if FWS and NMFS have indicated that an action poses little if any risk of taking a protected species).

IV.

AUTHORIZATIONS FOR ADOPTING A REPORTING
SYSTEM UNDER THE ESA

From a review of the implementation record to date, it is difficult to deny that the Services are in dire need of assistance if they are to achieve Congress' stated goal of conserving at-risk species and their ecosystems.³⁸¹ Likewise, it is difficult to deny that instituting a listed species reporting system under the ESA could generate at least some useful information capable of putting the Services in a better position to protect populations of threatened and endangered species.³⁸² Given the potentially salutary contributions of an RS, it is unfortunate that Congress lacked the scientific prescience to engraft an RS-type provision expressly within the text of the Act.³⁸³ Nonetheless, if FWS and NMFS were inclined to reap the benefits of an RS, they would need to look no further than the ESA itself for authority to do so. In fact, the Services could easily and legitimately design an RS to administer as a conservation program under the ESA. Adopted as such a program, an RS would further the legislative conservation purposes of the ESA.

A. *Conservation Under the ESA*

The conservation of threatened and endangered species represents the most pervasive theme underlying the Endangered Species Act. This focus on conservation permeates the statute's text from beginning to end.³⁸⁴ Congress opened the ESA by declaring that the statute's purpose is to "provide a means whereby ecosystems upon which [listed] species depend are conserved [and] to provide a program for the conservation of such [listed] species."³⁸⁵ At the same time, Congress affirmed the official policy "that all Federal departments and agencies shall seek to con-

381. 16 U.S.C. § 1531(b) (2003); *see supra* note 11 (discussing the fallout of current ESA application practices on listed species).

382. *See supra* Part III.C. (discussing the benefits of an RS on three mandatory ESA sections).

383. *See generally* 16 U.S.C. §§ 1531-1544 (2003) (mandating the implementation of various programs in furtherance of listed species conservation, but not specifically mentioning a reporting system or other similar program). At the same time, as Congress has almost uniformly struck down prior efforts to amend the ESA, it is unlikely that a remedy to this oversight will arrive by legislative mandate. Brennan et al., *supra* note 310, at 441; Rizzo, *supra* note 39, at 869.

384. *See* 16 U.S.C. §§ 1531-1544 (2003).

385. *Id.* § 1531(b).

serve [listed] species and shall use their authorities in furtherance of” ecosystem and species conservation.³⁸⁶ Importantly, the ESA drafters did not merely extol the virtues of conservation; they also authorized the Services to adopt programs such as an RS to facilitate achievement of this goal.

Congress defined the terms “conserve” and “conservation” under the ESA “to mean 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 [the ESA] are no longer necessary.”³⁸⁷ To bring about this conservation, Congress enumerated in the definition a non-exhaustive list of available “methods and procedures,” which includes “all activities associated with scientific resources management such as research, census, . . . [and] propagation.”³⁸⁸ Although each of these conservation activities bears on the authorization for implementing an RS, the ESA’s specification of “census” as a method for achieving listed species conservation is integral to denoting the statute’s authorization of an RS. Yet, neither the Act nor the Services’ joint regulations provide any definition for the term.³⁸⁹ Pursuant to the rules of statutory construction, it is therefore presumed that Congress intended to use the term “census” in conformity with its commonly-understood definition.³⁹⁰ Accordingly, as a conservation method or procedure, a census is “an official count or survey of a population.”³⁹¹ The legislative history surrounding the drafting of the ESA comports with this interpretation,³⁹² as Congress

386. *Id.* § 1531(c)(1).

387. *Id.* § 1532(3).

388. *Id.*

389. *See generally id.* §§ 1531-1544; *see also generally* 50 C.F.R. §§ 401-453.

390. *See Sweet Home*, 515 U.S. at 697 (determining the scope of the definition of “harm” in the Services’ joint regulations based on “an ordinary understanding of the word”).

391. OXFORD ENGLISH DICTIONARY 227 (10th ed. 1999).

392. Both the House and Senate bills for the Endangered Species Act identified “conservation” as a primary goal of the statute, but neither bill precisely defined the term as it appears in the statute’s text. While the House bill failed to define the term “conservation,” the Senate bill required the Services to issue regulations necessary to achieve “conservation and management,” which it defined as “the collection and application of biological information for the purposes of increasing and maintaining the number of animals within species and populations of [listed] species.” In the end, the Conference Committee, as a compromise between the House’s omission of the definition and the Senate’s definition of “conservation and management,” eventually retained only the term “conservation” in the text of the ESA. Even with this compromise, however, the Conference Committee preserved the thrust of the Sen-

broadly defined “conservation” under the ESA to embrace all scientific resource management activities as methods and procedures available for conservation programs.³⁹³

Thus Congress indicated an intent to achieve conservation, at least in part, by collecting population and other biological information regarding listed species.³⁹⁴ Within the ESA, the most straightforward means to honor this intent is by conducting censuses of threatened and endangered species.³⁹⁵ An RS is a logical, dependable, and cost-effective method that could easily provide the large quantities of input needed for censuses by generating constantly updated information which the Services in turn could apply to promote the conservation of listed species.

B. *Instituting a Reporting System Under the Conservation Mandate in Section 7(a)(1)*

Congress did not merely contemplate the use of conservation programs, such as censuses and possibly an RS, under the ESA. On the contrary, within the text of section 7(a)(1) requires every federal agency to carry out “programs for the conservation of endangered species and threatened species listed pursuant to [the ESA].”³⁹⁶ While this provision imposes an affirmative conservation mandate on all federal agencies, it does not elaborate on the procedures necessary for compliance.³⁹⁷ Moreover, the duty to conserve represents an apparent anomaly under the ESA, as the Services thus far have elected not to provide any guidance in the form of implementing regulations for section 7(a)(1).³⁹⁸ Because of Congress’ statutory reticence and the Services’ administrative quiescence regarding the conservation mandate, to this point the section has largely been overlooked.³⁹⁹ Consequently, courts

ate’s “conservation and management” definition, as well as its emphasis on the collection and application of biological information.

393. Compare S. 1983, 93d Cong. §§ 3(1), 4(e) (1973), with 16 U.S.C. § 1532(3) (2003).

394. See *Sierra Club v. Clark*, 755 F.2d 608, 615 (8th Cir.1985) (explaining that “the term conservation was redefined to include generally the kinds of activities that might be engaged in to improve the status of endangered and threatened species so that they would no longer require special treatment”).

395. See 16 U.S.C. § 1532(3) (2003) (setting forth the non-exhaustive list of methods and procedures available for conservation programs and including “census” on the list).

396. *Id.* § 1536(a)(1).

397. See *id.*; Fischman & Hall-Rivera, *supra* note 80, at 58.

398. Ruhl, *supra* note 54, at 1128.

399. *Id.* at 1125; see also *supra* text accompanying notes 231-36.

have had little opportunity to evaluate the particulars or implications of the provision.⁴⁰⁰ It is evident, however, that the courts which have addressed the provision's mandate have not in any way inhibited the Services from administering an RS as a listed species conservation program.

The few courts that have reviewed section 7(a)(1) have indicated that an untapped conservation resource lurks within its text. Indeed, as the Supreme Court explained in *TVA v. Hill*, the provision was drafted in "stringent, mandatory language," which demonstrates "an explicit congressional decision to require agencies to afford first priority to the declared national policy of saving endangered species."⁴⁰¹ The Court traced this decision to the legislative history of the statute and a statement by Representative John Dingell, the House manager of the proposed bill that eventually became the ESA.⁴⁰² Elaborating on the section's potency, Representative Dingell explained that:

[Section 7] substantially amplifie[s] the obligation of [federal] agencies to take steps within their power to carry out the purposes of this act. . . . The purposes of the bill included the conservation of species and of the ecosystems upon which they depend, and every agency of the government is committed to see that those purposes are carried out. . . . [T]he agencies of the government can no longer plead that they can do nothing about it. They can, and they must. The law is clear.⁴⁰³

Armed with this support from the genesis of the ESA, the Court identified the wide reach inherent in section 7 and the general thrust of its conservation mandate. Yet, in *TVA v. Hill*, the Court declined to demarcate the mandate's parameters.⁴⁰⁴ To a limited extent, however, other federal courts have broached the issue.

Since the onset of the ESA's enactment, federal district and appellate courts have noted that the conservation mandate imposes a duty on the Services which entails more than just a negative duty to avoid listed species extinction.⁴⁰⁵ It entails an affirmative duty to "bring these species back from the brink so

400. Andrew G. Frank, Note, *Reforming the Endangered Species Act: Voluntary Conservation Agreements, Government Compensation and Incentives for Private Action*, 22 COLUM. J. ENVTL. L. 137, 140 (1997).

401. *TVA v. Hill*, 437 U.S. at 183, 185; Ruhl, *supra* note 54, at 1127.

402. *TVA v. Hill*, 437 U.S. at 183-84.

403. 119 CONG. REC. 42913 (1973) (statement of Rep. Dingell) (quoted in *TVA v. Hill*, 437 U.S. at 183-84) (emphasis omitted).

404. Ruhl, *supra* note 54, at 1127.

405. *Defenders of Wildlife v. Andrus*, 428 F. Supp. 167, 170 (D.D.C. 1977).

that they may be removed from the protected class, and [the Services] must use all methods necessary to do so.”⁴⁰⁶ This means that neither FWS nor NMFS can “limit its focus to what it considers the most important management tool available to it, *i.e.*, habitat control, to accomplish” species conservation.⁴⁰⁷ Rather, because Congress included within section 7(a)(1) “an affirmative duty on each federal agency to conserve each of the species listed,” the agencies must create or administer programs capable of realizing species conservation.⁴⁰⁸ Thus, reviewing courts have been inclined to interpret the conservation mandate as an action-forcing mechanism.⁴⁰⁹

At the same time, because Congress neglected to set forth procedural guidance in the mandate, courts have also noted that the provision is not completely devoid of administrative flexibility. In this vein, some courts have recognized that agencies retain some discretion in determining which conservation programs to implement under their authority.⁴¹⁰ This discretion is not unlimited, however. Like all actions they take in response to statutory direction, the agencies must exercise their discretion within the bounds of the Administrative Procedure Act’s “arbitrary and capricious, abuse of discretion, or otherwise not in accordance with law” standard.⁴¹¹ In essence, this requires the agencies to ensure that their conservation programs “attack the cause or causes of population depletion of a species.”⁴¹² A reporting system, implemented as a census-based conservation program, could easily survive this standard because it would generate new information about listed species and their habitats which could be applied for their own protection.

406. *Id.*

407. *Id.*

408. See *Sierra Club v. Glickman*, 156 F.3d 606, 616 (5th Cir. 1998) (finding the USDA in violation of the conservation mandate for the agency’s failure to utilize any conservation programs).

409. *Id.*; Ruhl, *supra* note 54, at 1135-37 (discussing *Connor v. Andrus*, 453 F. Supp. 1037, 1041 (W.D. Tex. 1978)).

410. See *e.g.*, *Pyramid Lake Paiute Tribe of Indians v. United States Dept. of the Navy*, 898 F.2d 1410, 1418 (9th Cir. 1990) (noting that federal agencies maintain “some discretion in ascertaining how best to fulfill the mandate to conserve under section 7(a)(1)”; *Defenders of Wildlife v. Andrus*, 428 F. Supp. 167, 170 (D.D.C. 1977); *Nat’l Wildlife Fed’n v. Hodel*, *Env’tl. Rep. Cas. (BNA)* 1089, 1092 (E.D. Cal. 1985) (implicitly agreeing that agencies can “pick and choose” among a number of different conservation programs under the conservation mandate).

411. 5 U.S.C. § 706; *N. Spotted Owl v. Hodel*, 716 F. Supp. 479, 481-82 (W.D. Wash. 1988).

412. *Connor v. Andrus*, 453 F. Supp. 1037, 1041 (W.D. Tex. 1978).

The agencies' exercise of the somewhat discretionary authority under the conservation mandate has never amounted to much of a concern, though, because they have historically shrugged off their responsibility to create or implement conservation programs under section 7(a)(1). In fact, in the past FWS and NMFS intentionally avoided creating conservation programs because they understood the provision's mandate as "having a limited purpose under the Act."⁴¹³ However, roughly a decade ago – perhaps out of recognition that this position stood in stark contrast to the plain language of the ESA and judicial interpretation of the duty to conserve – the Services engaged in an interpretive about-face and now appear to comprehend the importance of section 7(a)(1).

In 1994, FWS and NMFS, along with twelve other federal agencies, entered into a Memorandum of Understanding (MOU) to conserve listed species "by preserving and managing their populations and the ecosystems upon which those populations depend."⁴¹⁴ The MOU, which remains in effect, identifies several specific tasks for its signatories to implement in promotion of conserving listed species and critical habitat.⁴¹⁵ One of the most meaningful tasks upon which each signatory agreed is the use of agency authorities to advance the ESA's purposes by engaging in listed species conservation programs.⁴¹⁶ This in itself is a significant step forward under section 7(a)(1) for the Services and, by association, the other signatory agencies because the MOU apparently certifies the conservation mandate as a prominent fixture in listed species protection under the ESA.⁴¹⁷ At the

413. Interagency Cooperation: Final Rule, 51 Fed. Reg. 19,926, 19,934 (June 3, 1986); Ruhl, *supra* note 54, at n.98.

414. Memorandum of Understanding Between Federal Agencies on Implementation of the Endangered Species Act, signed Sept. 28, 1994, DAILY ENVTL. REP. No. 188, at E-1 (Sept. 30, 1994). Among the signatories of the MOU are: the Services, the U.S. Forest Service, the U.S. Department of Defense, the U.S. Army Corps of Engineers, the Bureau of Land Management, the Bureau of Mines, the Bureau of Reclamation, the Minerals Management Service, the National Park Service, the U.S. Coast Guard, the Federal Aviation Administration, the Federal Highway Administration, and the Environmental Protection Agency. *Id.*; Ruhl, *supra* note 54, at n.1.

415. Memorandum of Understanding, *supra* note 416, at E-5.

416. *Id.*

417. See Ruhl, *supra* note 54, at 1146. It is important to note that, even though the MOU espouses a revived understanding of section 7's duty to conserve, the policy does not carry the same weight as agency regulations do. In fact, the MOU does not require any signatory to commit funds for the benefit of conservation under the policy and allows any signatory to terminate its participation in the MOU at will. Memorandum of Understanding, *supra* note 416, at E-7.

same time, this policy indicates that the Services have abandoned their enigmatic belief in the mandate's doctrinal infirmity.⁴¹⁸

The signatories also agreed on two tasks in particular that would support the adoption of a reporting system. First, the MOU identifies the need for its signatories to exchange information and research about listed species to advance conservation efforts.⁴¹⁹ This policy embraces the necessity of acquiring additional information to fill the data gaps that riddle the current understanding of threatened and endangered species. A reporting system could generate the same type of information, but on a broader scale and in a more continuous manner.

Second, the MOU obligates its signatories "to implement the ESA with the appropriate involvement of the public, States, Indian Tribal governments, and local governments."⁴²⁰ This aspect of the understanding acknowledges the importance of consociating with the public and non-federal entities to pool resources and collaborate in the conservation of at-risk species.⁴²¹ A reporting system could effectuate these ideals by uniting governmental and non-governmental stakeholders in the quest to achieve listed species conservation while utilizing the specialized proficiencies and assets of each involved interest. Thus, it is apparent that the attributes of an RS easily fall within the scope of, and even advance, the Services' and the signatories' understanding of their conservation duties under the ESA. Just as important, an RS could inject substance into section 7(a)(1), the "monumental underachiever of the ESA family."⁴²²

Although the MOU brought some recognition to the provision, the fact remains that Congress, the Services, and consequently the courts seem to have forsaken section 7(a)(1) for the ESA's easier to apply provisions.⁴²³ If the Services accessorized the conservation mandate with a reporting system, however, they could tailor section 7(a)(1) into a versatile and befitting compo-

418. Ruhl, *supra* note 54, at 1146; *see supra* text accompanying note 415. However, the MOU still does not provide specific procedures for implementing section 7(a)(1) and leaves its action-forcing ability open to interpretation. Ruhl, *supra* note 54, at 1147. Yet, even with these deficiencies, the MOU indicates a more generous interpretation of the conservation mandate that, most importantly here, does not foreclose the possibility of adopting a reporting system.

419. Memorandum of Understanding, *supra* note 416, at E-5.

420. *Id.* at E-6.

421. *See* Ruhl, *supra* note 54, at 1147.

422. *Id.* at 1128.

423. *See* Frank, *supra* note 402, at 140 (noting that the conservation mandate has not been given "any concrete, binding form").

ment of the ESA. Indeed, were the Services to institute an RS under section 7(a)(1), they would create a powerful species conservation tool.

For several reasons, if effectuated by means of a useful conservation program such as a reporting system, section 7(a)(1) could help to achieve the long-overdue goals of the ESA. First, unlike section 7's other mandate, the consultation requirement, the conservation mandate is not dependent on a particular action or project for it to spring to life.⁴²⁴ Rather, the mere listing of a species as threatened or endangered triggers section 7(a)(1), which would activate the reporting system, thereby generating listed species information from day one. Second, section 7(a)(1) operates independent from the species taking prohibition and agency jeopardy determinations.⁴²⁵ Again, when the Services list a species under the ESA, the conservation mandate automatically activates.⁴²⁶ Unlike the taking and jeopardy provisions, the duty to conserve applies completely prospectively; its conservation powers do not take a back seat to some preliminary finding of harm to listed species.⁴²⁷ Third, also unlike the taking prohibition, the conservation mandate applies to every listed species: endangered species, threatened species, plant species, and animal species.⁴²⁸ Thus, if administered with a reporting system, the mandate could distribute some of the ESA's benefits to all at-risk species equally, not just the species protected by the taking prohibition.

These are just a few of the added benefits that the marriage of a reporting system to the agencies' duty to conserve could have on listed species protection. Due to historic inertia associated with the provision and its textual flexibility, the duty to conserve represents one of the only reserve assets remaining in the ESA. While the conservation mandate might appear to have limited applicability to a narrow range of federal agency programs, the provision, utilized effectively, could be a paragon of conservation.

The only substantive limitation is that the ESA restricts the application of section 7(a)(1) to the utilization of federal agency authority.⁴²⁹ In practice, this limitation poses only a minor set-

424. Ruhl, *supra* note 54, at 1122-23.

425. *Id.* at 1123.

426. *Id.*

427. Compare 16 U.S.C. § 1536(a)(1) (2003), with 16 U.S.C. §§ 1536(a)(2)-(c), 1538 (2003).

428. Ruhl, *supra* note 54, at 1124; see discussion *supra* Part III.C.1.

429. Ruhl, *supra* note 54, at 1125.

back, given federal agencies' geographically expansive purview over federal lands,⁴³⁰ as well as their far-reaching authority over non-federal actions requiring federal permitting, funding, and oversight.⁴³¹ Nevertheless, many actions would still fall outside the ambit of section 7's conservation mandate.⁴³² Fortunately, Congress provided another method in the text of the ESA for instituting conservation programs absent federal agency involvement.

C. *Instituting a Reporting System Under State Cooperative Agreements*

The authority to regulate fish, wildlife, and plants has not always rested with the federal government. Beginning shortly after the American Revolution, the states acquired regulatory authority over the nation's plant and animal species.⁴³³ During the 19th Century, they created their own wildlife agencies and, over the next 150 years, developed expertise regarding the living resources found within state borders.⁴³⁴ When Congress enacted the Endangered Species Act in 1973, however, it stripped away a great deal of the states' species management authority.

The ESA reassigned control over species takings to the federal government and preempted any state law contravening the ESA.⁴³⁵ In so doing, the ESA transferred significant funding from the states' wildlife management programs to the ESA's implementing agencies.⁴³⁶ Despite this sudden shift toward federal control, Section 6 of the ESA preserved a state role by providing a framework for cooperation between the state and federal governments to achieve species conservation. This cooperative

430. For instance, the agencies maintain authority over an incomprehensible expanse of federal lands. Comprising these lands are 92 million acres in the national refuge system, 191 million acres in national forests, 80 million acres in national parks, and 264 million acres in Bureau of Land Management-controlled multiple use lands.

431. See LIEBESMAN & PETERSEN, *supra* note 138, at 28 (detailing the wide range of agency actions contemplated for consultation under section 7(a)(2)). At the very least, agency authority would extend over the same scope of actions as the consultation requirement, if not more.

432. See *Id.*

433. See *Martin v. Wadell*, 41 U.S. (16 Pet.) 367, 410 (1842) (assigning the authority over species previously held by the King of England to the various states).

434. Ernst, *supra* note 370, at 99-100.

435. 16 U.S.C. § 1535(f) (2003); Ernst, *supra* note 370, at 100-01.

436. Ernst, *supra* note 370, at 101.

framework also provides a means for instituting a listed species RS in participating states.

1. Partnerships for Cooperation and Conservation Under Section 6 and the Authorization of a Reporting System

When drafting the ESA, Congress recognized the importance of preserving state involvement in species conservation. In the 1973 Conference Report, the drafters of the statute clarified their intentions for cooperation between federal and state entities:

[T]he successful development of an endangered species program will ultimately depend upon a good working arrangement between the federal agencies, which have broad policy perspective and authority, and the state agencies, which have the physical facilities and the personnel to see that state and federal endangered species policies are properly executed. The grant program authorized by this legislation is essential to an adequate program. . . . The conferees wish to make it clear that the grant authority must be exercised if the high purposes of this legislation are to be met.⁴³⁷

As the report demonstrates, the conferees recognized that to achieve success in conserving listed species, the Endangered Species Act would depend on significant participation at the state level. Among other legislative findings, the statute declares that “encouraging the States and other interested parties, through financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and international standards is a key . . . to better safeguarding . . . the Nation’s heritage in fish, wildlife, and plants.”⁴³⁸ To that end section 6 directs the Services to “cooperate to the maximum extent practicable with the States,”⁴³⁹ while the statute generally avoids preempting any productive species conservation programs already established within the states.⁴⁴⁰

As part of the cooperation between the states and the federal government, the ESA makes it incumbent on the Services to provide states with opportunities to manage and conserve their resident listed species and to support these efforts by allocating federal funding among participating states.⁴⁴¹ Under section 6,

437. CONF. REP. NO. 740, 93d Cong., 1st Sess. (1973).

438. 16 U.S.C. § 1531(a)(5) (2003).

439. *Id.* § 1535(a).

440. S. REP. NO. 93-307 (1973), reprinted in 1973 U.S.C.C.A.N. 2889, 2991-92; see Cassidy, *supra* note 107, at 211.

441. *Id.* § 1535(c)-(d).

the Services may enter into a management agreement with any state “for the administration and management of any area established for the conservation of endangered or threatened species.”⁴⁴² Moreover, the Services “shall” enter a cooperative agreement with an individual state so long as the state “establishes and maintains an adequate and active program for the conservation of” listed fish and wildlife species, listed plant species, or both.⁴⁴³ To qualify as an “adequate and active conservation program” for section 6 cooperative agreement status, a state’s proposal must: 1) vest authority in a state agency to conserve resident species listed as threatened or endangered by the Services or the state;⁴⁴⁴ 2) establish “acceptable conservation programs” for all resident species listed under the ESA;⁴⁴⁵ 3) authorize the state agency to investigate these listed species to determine their status and survival needs;⁴⁴⁶ and 4) empower the state agency to establish conservation programs for listed species protection.⁴⁴⁷

Through section 6, the ESA approves the allocation of federal funds for as much as 75% of the costs associated with a state’s approved program.⁴⁴⁸ The Act also encourages different states to cooperate with one another in species conservation, by authorizing the Services to allocate up to 90% of the costs associated with approved joint programs between two or more states.⁴⁴⁹ To effectuate these allocations, the ESA authorizes the Services to promulgate any appropriate regulations that might be needed.⁴⁵⁰ In addition, the Act provides that it does not preempt the states from establishing laws and regulations related to species takings that are more stringent than their federal counterparts.⁴⁵¹ Taken together, these section 6 provisions supply more than ample authorization for administering an RS as a state-based conservation program in any state that participates in a cooperative agreement with the Services.

442. *Id.* § 1535(b).

443. *Id.* § 1535(c)(1)-(2). Prior to the 1978 ESA Amendments, the cooperative agreement provisions were not available for state programs designed to conserve listed plants. BEAN & ROWLAND, *supra* note 6, at 268, n.359.

444. 16 U.S.C. § 1535(c)(1)(A), (2)(A) (2003).

445. *Id.* § 1535(c)(1)(B), (2)(B).

446. *Id.* § 1535(c)(1)(C), (2)(C).

447. *Id.* § 1535(c)(1)(D), (2)(D).

448. *Id.* § 1535(d)(2)(i).

449. *Id.* § 1535(d)(2)(ii).

450. *Id.* § 1535(h).

451. *Id.* § 1535(f).

So far, the Services have demonstrated a sensitivity to the important role that states play in conserving at-risk species. In fact, in 1994 the Services issued a joint policy statement acknowledging and elaborating on this principle:

State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Services in implementing all aspects of the Act.⁴⁵²

Pursuant to this policy, FWS and NMFS have formally agreed to avail themselves of the states' expertise during every step of ESA implementation.⁴⁵³ For example, the policy provides that the Services will "[u]tilize the expertise and solicit the information of State agencies" when: 1) preparing to reclassify or delist a species under section 4;⁴⁵⁴ 2) analyzing the impacts of proposed federal actions on listed species or CH during section 7's consultation process;⁴⁵⁵ 3) finalizing a biological opinion under section 7 "to ensure that the findings are based on the best scientific and commercial data available;"⁴⁵⁶ and 4) designing and implementing listed species recovery plans under section 4(f).⁴⁵⁷ Significantly, as discussed earlier, each of these ESA procedures for which the Services seek state information would also benefit from the information generated by an RS.⁴⁵⁸

As the Services' official policy demonstrates, in certain circumstances the states are simply better equipped to address localized issues involving at-risk species.⁴⁵⁹ An RS would complement the states' existing resources and enhance conservation of these species and their habitat. At the same time, the creation and use of an RS almost certainly falls within the scope of the above-enumerated ESA criteria for cooperative agreements.

452. Notice of Policy Statement, 59 Fed. Reg. 34275, Dept. Fish and Wildlife Serv. and Nat'l Marine Fisheries Serv. (July 1, 1994).

453. *Id.*

454. *Id.*

455. *Id.*

456. *Id.*

457. *Id.*

458. *See supra* Part III.

459. McDonald, *supra* note 86, at 173 (asserting that cooperation between state and federal agencies is important because "state governments have land use authority along with their state endangered species laws that protect a greater number of species.").

Qualifying for cooperative agreement funding partly hinges on a state program's authorization of "investigations to determine the status and requirements for survival of resident species of fish and wildlife."⁴⁶⁰ These are precisely the types of investigations to which an RS would contribute by generating at-risk species information from a wide range of sources throughout the state.⁴⁶¹

A handful of states have already recognized the salience value of eliciting nongovernmental participation in the gathering of information pertinent to species conservation under the ESA. These states have provided their citizens with an informal means to report listed species sightings.⁴⁶² A reporting system could carry their starting momentum forward and serve as a catalyst for crafting these relationships nationwide by rallying various stakeholders behind species conservation.

In addition to the required criteria for approving cooperative agreements, the provisions for fund allocation under the agreements also evidence the power to commission a reporting system under section 6. Upon approving a state's cooperative agreement, the Services must consider several factors to determine the proper federal financial assistance to allocate for state conservation programs.⁴⁶³ One of these factors, which is particularly relevant to administering an RS under section 6, is the required determination of "the number of endangered species and threatened species within a State."⁴⁶⁴ Because the Services allocate the federal funds on an annual basis, the states typically determine the number of listed species within their jurisdiction on an annual basis as well.⁴⁶⁵ By accounting for populations of any listed species of which the states may be unaware, an RS could help verify the accuracy of these annual species censuses. In addition, because the ESA authorizes FWS and NMFS to promul-

460. 16 U.S.C. § 1535(c)(1)(C), (2)(C) (2003).

461. See discussion *supra* Part I.A-B.

462. Telephone Interview with René Hypes, Virginia Division of Natural Heritage, Department of Conservation & Recreation (Apr. 27, 2004) (discussing the usefulness of state systems that account for listed species information and accept species sighting reports submitted from external sources). See, e.g., Maryland Dept. of Natural Res., Wildlife & Heritage Service, Reporting Locations of Rare Species, available at <http://www.dnr.state.md.us/wildlife/reportinginst.html>; New Jersey Div. of Fish & Wildlife, Reporting a Threatened or Endangered Species, available at <http://www.state.nj.us/dep/fgw/ensp/rprtform.htm>.

463. 16 U.S.C. § 1535(d)(1) (2003).

464. *Id.*

465. *Id.*; see *id.* § 1535(e) (providing that the Services shall review "[a]ny action taken . . . under [section 6] . . . at not greater than annual intervals).

gate regulations as appropriate to allocate section 6 funds, the Services could develop an RS for participating states to implement pursuant to the provision's cooperative agreement criteria and fund allocation evaluations.⁴⁶⁶ This would allow both the states and the Services to analyze the success of existing conservation programs at the state level and more efficiently test the accuracy of the allocation granted.

Adopting a state reporting system as a section 6 regulation could establish a comprehensive network of sources to produce listed species information that the Services could incorporate with information generated under a section 7-based RS for the federal government. Although the ESA does not require any state to participate in cooperative agreements, all fifty states, as well as Guam, Puerto Rico, and the U.S. Virgin Islands have entered into these partnerships for conservation.⁴⁶⁷ Therefore, while it might seem free-floating initially, the data generated by reporting systems at the state and federal levels have the potential to create the mosaic of information necessary to conserve threatened and endangered species and to bring security to stakeholders hoping to avoid ESA liability. At the same time, establishing an RS at both of these levels would allow the Services to extend these benefits to a much broader range of non-federal lands and actions—including those owned or conducted entirely by state governments and private parties. Consequently, it is important to clarify that imposing such a program on non-federal parties falls squarely within the powers of the federal government under the United States Constitution.

2. The Constitution Does Not Bar Institution of a Reporting System at the State Level

Tangential to the constitutional questions arising from the Services creating a reporting system for state governments and, consequently, other non-federal actors under section 6, is the historical backdrop behind the enactment of the ESA. While the states traditionally held authority over wildlife management within their borders, their authority was never absolute.⁴⁶⁸ In

466. See *id.* § 1535(d)(1) (setting forth various factors for the Services to consider when allocating federal funds for state cooperative agreements).

467. LIEBESMAN & PETERSEN, *supra* note 138, at 58. Each of these entities has entered into cooperative agreements for fish and wildlife species, while nearly all have entered into cooperative agreements for plant species. *Id.*

468. See BEAN & ROWLAND, *supra* note 6, at 10-15 (tracing the development of the states' ownership over resident wildlife).

fact, in *Martin v. Waddell*, the same case in which the Supreme Court vested the states with control over their resident wildlife, the Court noted that the states' wildlife authority was "subject . . . to the rights since surrendered by the Constitution to the general government."⁴⁶⁹ Despite this unambiguous qualification on the states' wildlife authority, its federalist overtones were generally disregarded.⁴⁷⁰ In its 1896 ruling in *Greer v. Connecticut*, the Supreme Court reaffirmed this qualification on state wildlife authority when the Court noted that the states' authority could continue only to the extent that "its exercise may be not incompatible with, or restrained by, the rights conveyed to the federal government by the Constitution."⁴⁷¹ This did not sit well with the states and controversy ensued over the actual applicability of the Court's constitutional observation.⁴⁷²

Shortly thereafter, Congress, apparently contemplating the holding's impacts on the distribution of wildlife authority between the states and the federal government, drafted the Lacey Act of 1900.⁴⁷³ This statute marked the first attempt at federal wildlife regulation ever to reach fruition, and was grounded in Congress' plenary constitutional power to regulate commerce among the states.⁴⁷⁴ The Lacey Act provided federal enforcement of state wildlife laws for violations involving the interstate commerce of species.⁴⁷⁵ While the statute provided for shared authority among the state and federal governments in the arena of wildlife control, it also demonstrated a legitimate constitutional basis for federal authority over wildlife and paved the way for transferring command over at-risk species to the federal government under the ESA.

When Congress enacted the Endangered Species Act in 1973, it effectively removed much of the states' authority over regulation of at-risk species and rekindled the controversy over federal control of the nation's living resources.⁴⁷⁶ In response to the

469. 41 U.S. (16 Pet.) 367, 410 (1842); BEAN & ROWLAND, *supra* note 6, at 11-12.

470. BEAN & ROWLAND, *supra* note 6, at 11-12.

471. *Greer v. Connecticut*; 161 U.S. 519 (1896); BEAN & ROWLAND, *supra* note 6, at 14.

472. BEAN & ROWLAND, *supra* note 6, at 15.

473. Lacey Act, Ch. 553, 31 Stat. 187 (1900) (current version at 16 U.S.C. §§ 3371-3378).

474. See U.S. CONST. art. 1 § 8, cl. 3 (establishing that "Congress shall have power . . . [t]o regulate Commerce with foreign Nations and among the several States, and with the Indian Tribes"); BEAN & ROWLAND, *supra* note 6, at 15.

475. BEAN & ROWLAND, *supra* note 6, at 15.

476. ROHLF, *supra* note 104, at 186-87.

ESA, a state agency in Hawaii, brought a Tenth Amendment challenge to the constitutionality of the federal government's assertion of power over a solely intra-state listed species.⁴⁷⁷ In *Palila v. Hawaii Department of Land and Natural Resources*, the United States District Court of Hawaii ruled that Congress' Commerce power entitles the federal government to preempt state control over resident wildlife, even when a species lives entirely within a single state.⁴⁷⁸ The court also reasoned that the state's receipt of federal funding under a cooperative agreement with the Services evidenced a voluntary participation in federal government activities and thus subjected the state to federal pre-emption.⁴⁷⁹ The court thus concluded that the Tenth Amendment does not constrain enforcement of the ESA on state governments.⁴⁸⁰

Accordingly, *Palila* suggests the Tenth Amendment similarly does not limit the Services' regulatory authority to implement the ESA. As the administrative agencies charged by Congress with implementing the ESA, FWS and NMFS, under the Departments of Interior and Commerce, operate pursuant to the federal Commerce power.⁴⁸¹ Consequently, when exercising the authority Congress delegated to them under the ESA, the Services are bound by the same constitutional constraints that apply to the legislature.⁴⁸² However, as *Palila* demonstrates, these constraints do not preclude the Services from entering into the traditional state arena of regulating wildlife species that live entirely within a single state.⁴⁸³ In fact, to fulfill their delegated responsibility under the ESA, the Services must fill the legislative gaps in the Act, even if this means impinging on the states' regulation of resident species. They do this by promulgating various substantive and procedural rules which explicate and administer the ESA's provisions to ensure that the statute is faithfully applied.⁴⁸⁴ Pursuant to this regulatory authority, the Services may create and implement a reporting system for the states under the ESA.

477. See U.S. CONST. amend. X (declaring that "[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people"); *Palila v. Hawaii Dept. of Land and Natural Res.*, 471 F. Supp. 985, 995-98 (D. Haw. 1979), *aff'd* 639 F.2d 495 (9th Cir. 1981).

478. *Palila*, 471 F. Supp. at 995-98.

479. *Id.*

480. *Id.*

481. MUSGRAVE ET AL., *supra* note 50, at 69-72.

482. *Id.* at 72.

483. *Id.* at 80-81.

484. *Id.*

Along these lines, Congress expressly provided in the ESA a definition of the term “conservation” that lists methods and procedures, such as censuses, for protecting at-risk species.⁴⁸⁵ Congress also ordered the Services, as implementing agencies of the statute, to cooperate with state governments and help them to develop, implement, and finance conservation programs to protect resident populations of at-risk species within the states’ borders.⁴⁸⁶ To authorize and finance state cooperative agreements, the Services must ensure that the states’ programs meet certain criteria, including authority to conduct investigations and research to determine a species’ status and needs, and they must allocate funding based in part on the number of listed species within the states.⁴⁸⁷ The ESA also expressly grants the Services authority to promulgate appropriate regulations to carry out these duties.⁴⁸⁸ Because an RS can aid both the Services and the states when performing these functions, and because an RS could serve as a basic component of census conservation programs, the institution of such a system at the state level would constitute a reasonable exercise of the Services’ statutory authority under the ESA.

For similar reasons, by implementing an RS under section 6, the Services would avoid infringing on the states’ Tenth Amendment rights. Even though the ESA vests control over at-risk species conservation in the federal government, the Tenth Amendment prohibits both Congress and the Services from compelling “States to implement, by legislation or executive action, federal regulatory programs.”⁴⁸⁹ In the same vein, neither Congress nor the Services may compel the states to regulate its citizens or other parties to advance a federal program.⁴⁹⁰ These constitutional restrictions, however, do not preclude FWS and NMFS from imposing an RS on states.

Implementation of an RS under section 6 of the ESA is permissible under the Tenth Amendment because, although the federal government cannot compel states to execute federal

485. 16 U.S.C. § 1532(3).

486. *Id.* § 1535(c)-(d); *see also* discussion *supra* Part IV.C.

487. 16 U.S.C. § 1535(c)-(d) (2003); *see also* discussion *supra* Part IV.C.1.

488. 16 U.S.C. § 1535(h) (2003).

489. *Printz v. United States*, 521 U.S. 898, 925 (1997). These protections extend to municipalities as well. *Id.* at 931, n.15; *see also* *Envtl. Def. Ctr. v. EPA*, 344 F.3d 832, 847 (9th Cir. 2003) (upholding a federal agency rule regulating municipal storm sewer discharges under the Clean Water Act).

490. *New York v. United States*, 505 U.S. 144, 188 (1992).

regulatory schemes, it may entice them to do so.⁴⁹¹ Accordingly, the federal government may legitimately entice states to participate in a federal program by providing federal funding to only those states that elect to participate in the program.⁴⁹² So long as a state retains the final decision of whether or not to participate in a federal program, the program does not violate the Tenth Amendment.⁴⁹³ This is precisely what section 6 of the ESA allows. The statute does not require states to engage in cooperative agreements with the Services; it simply encourages their participation by delegating management authority and funding for conserving resident listed species.⁴⁹⁴ States are free to participate in the program or to snub it. Therefore, the Services could institute an RS at the state level without transgressing the states' constitutional rights.

In sum, there is more than sufficient authorization for the Services to establish an RS. Congress provided the power to institute such a program; the continuing depletion of listed species populations provides the incentive to do so. The only thing standing in the way of the Services is funding and their own administrative inhibitions.

CONCLUSION

Although more than thirty years have passed since Congress drafted the Endangered Species Act, the necessity of realizing species and habitat conservation is as prominent today as it was in 1973.⁴⁹⁵ Notwithstanding the intent and policies of Congress, and even though the statute has often achieved moderate stability of listed species populations, the ESA has not enjoyed widespread success in nurturing species to healthy population levels existing beyond the imminent grasp of extinction.⁴⁹⁶ In all likelihood, the majority of listed species will remain on the Services' threatened and endangered species lists for the foreseeable future.⁴⁹⁷ This does not mean that the ESA, the predominant vessel for at-risk species protection, should be scuttled. On the

491. *Id.* at 166-68.

492. *See* *South Dakota v. Dole*, 483 U.S. 203, 205-08 (1987) (affirming a federal program that qualified federal funding for state highways on a state's adoption of a prescribed minimum drinking age).

493. *New York*, 505 U.S. at 168.

494. 16 U.S.C. § 1535(c)-(d) (2003).

495. *See supra* note 11.

496. *Id.*

497. *Doremus*, *supra* note 74, at 10435.

contrary, the large number of species still teetering on the brink attests to the continued importance of the statute and indicates that its conservation methods should be fortified.

Through the Endangered Species Act, Congress constructed an innovative framework for at-risk species conservation, but the blemished implementation of the statute has caused its failures to overshadow its achievements. Judging from legislative routine since the Act's inception, however, it is improbable that any novel conservation tools to sharpen the ESA's performance will arrive via congressional amendment.⁴⁹⁸ Fortunately, there remains abundant latent potential within the ESA's text that the Services can direct toward improving the statute.⁴⁹⁹ Given its purpose of identifying and conserving threatened and endangered species, success under the ESA is contingent on accurate, comprehensive data gathering and sound research.⁵⁰⁰ The road to species recovery is paved with science and precision, not guesswork and approximation. A reporting system is one method that could deliver an additional aspect of scientific reliability with which to implement the ESA.

An RS could produce valuable information about known and unknown listed species populations and allow the Services to gain greater insight into the diversity, range, and needs of individual species.⁵⁰¹ The Services could improve their decision-making with regard to listed species and realign ESA implementation with Congress' intent to "halt and reverse the trend toward species extinction, whatever the cost."⁵⁰² At the same time, a reporting system could bring an added measure of security to the regulated community by helping to assure landowners that they do not throw caution to the wind every time they engage in activities on private property.⁵⁰³ This could help to stem the deep-seated anxiety that the ESA and listed species currently evoke from many landowners. As a result, the Services could likely institute an RS as an effective means to protect listed species without ignoring the anti-regulatory concerns of non-federal stakeholders.

498. See *supra* note 383.

499. See discussion *supra* Parts III-IV.

500. See discussion *supra* Part III.

501. See discussion *supra* Part III.

502. *TVA v. Hill*, 437 U.S. at 184.

503. See discussion *supra* Part III.

The statute needs these improvements to rectify ongoing uncertainties for both species and the regulated community. Congress, through the Endangered Species Act, provided the power to achieve threatened and endangered species conservation, as well as stability for all stakeholders subject to the statute's requirements. The proposed reporting system, together with existing agency conservation tools, could provide the means for realizing both. A lack of funding and a sterile imagination are the only things standing between the ESA and the conservation of all listed species populations—known and unknown.