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Endangered Species Information: Access and Control

Robert L. Fischman* & Vicky J. Meretsky**

I. INTRODUCTION

In his keynote contribution to this special issue of the *Washburn Law Journal*, Professor Sax spotlights restoration and the ways the Endangered Species Act (“ESA”)¹ promotes new forms of collaborative governance to manage ecosystems. All of the changes that he documents, from multi-agency watershed councils to habitat conservation planning, will require better and more prompt information to succeed. Indeed, one of the greatest challenges to the effectiveness of administrative innovation is our poor understanding of the precise relationships between human activities, such as forest practices or residential development, and species recovery.

Adaptive management itself, which almost everyone agrees is a key element in Sax’s “new age of environmental restoration,” is information intensive.² Adaptive management responds to dynamic ecological characteristics by “[r]ecognizing that every land management practice is an experiment with an uncertain outcome.”³ In adaptive management, authorized activities are coordinated and monitored to determine their effects on species or other resources of concern.⁴ The information gained then feeds back “to adjust management in a desirable direction.”⁵

One of the fundamental needs of the new age of environmental restoration, therefore, will be more effective use of existing informa-

* Professor, Indiana University School of Law–Bloomington; Senior Research Scholar, Yale Law School (2001). I am grateful to Myrl Duncan for the invitation to contribute to this symposium. I wish to thank Beth Cate, Fred Cate, Patrick Parenteau, and Craig Pease for generously sharing their insightful thoughts and work on this topic. An Indiana University School of Law summer research grant and the Yale Law School supported this work.

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1. 16 U.S.C. §§ 1531-1544 (1999).

2. Joseph L. Sax, *The New Age of Environmental Restoration*, 41 WASHBURN L.J. 1 (2001). Professor Sax uses the term adaptive management in describing the ESA “no surprises policy.” *Id.* at 5.

3. Reed F. Noss, *Some Principles of Conservation Biology, As They Apply to Environmental Law*, 69 CHI.-KENT L. REV. 893, 907. Adaptive management is based on feedback from continual management experimentation.

4. See generally KAI N. LEE, COMPASS & GYROSCOPE: INTEGRATING SCIENCE AND POLITICS FOR THE ENVIRONMENT (1993); C.J. WALTERS, ADAPTIVE MANAGEMENT OF RENEWABLE RESOURCES (1986). The U.S. Fish and Wildlife Service provides a helpful bibliography of relevant adaptive management literature in Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35242, 35256-57 (2000).

5. *Id.* See also Tim W. Clark et al., *Synthesis, in* ENDANGERED SPECIES RECOVERY: FINDING THE LESSONS, IMPROVING THE PROCESS 417, 425 (Tim W. Clark et al. eds., 1994).

tion and more research to create new information.⁶ More effective use of existing information will often require widespread, early, and rapid disclosure of research results. More research will require greater funding. The lack of good data on endangered species and poor access to existing data is symptomatic of a larger failure to employ adaptive management.⁷ This is especially true for endangered species,⁸ where failure to use current and accurate information can compromise species' chances for recovery.⁹ For instance, lack of monitoring and assessment information about grizzly bears throughout the 1980s and the 1990s impeded recovery.¹⁰ Poor experimental design and poor access to data flow, in large part, from the neglect of the empirical research component of management decisions. This article focuses on access and control of information as an indicator of the gap between adaptive management theory and actual agency practice.

Outside of medicine, publication of scientific research generally proceeds at a pace not dictated by a strong sense of urgency. The traditional understanding of scientists is that data are not released until the researcher is ready to publish. Scientists may guard their data

6. See Erica Fleishman, *Moving Scientific Review Beyond Academia*, 15 CONSERVATION BIOLOGY 547 (2001) ("We will not achieve our conservation mission unless research is executed, results disseminated, and management actions initiated at a rapid pace."); Tim W. Clark et al., *supra* note 7, at 420.

7. Richard P. Reading & Brian J. Miller, *The Black-footed Ferret Recovery Program: Unmasking Professional and Organizational Weaknesses*, in ENDANGERED SPECIES RECOVERY: FINDING THE LESSONS, IMPROVING THE PROCESS 73, 88-90 (Tim W. Clark et al. eds., 1994); U.S. GENERAL ACCOUNTING OFFICE, FOREST SERVICE DECISION-MAKING: A FRAMEWORK FOR IMPROVING PERFORMANCE 41-45 (1997) (GAO/RCED-97-71).

8. The ESA protects two different categories of species, threatened and endangered, that suffer serious risk of extinction. 16 U.S.C. § 1532(6), (20) (1999). However, for the purposes of this article, we will use the term "endangered species" broadly to include any species receiving the special protection of the ESA. Another, more technical term, "listed species," also refers to both categories of species. Though some threatened animals enjoy less protection than endangered animals under the ESA, generally the issues we discuss in this article apply equally to both. Threatened and endangered plants, on the other hand, are largely unprotected from non-federal activities and not subject to the ESA permits discussed in this article.

9. Currently, 1244 species in the United States are listed under the ESA. U.S. FISH & WILDLIFE SERV., THREATENED AND ENDANGERED SPECIES SYSTEM (TESS), <http://ecos.fws.gov/tess/html/boxscore.html> (last visited Sept. 7, 2001). A species does not receive protection under the ESA until either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service lists it through notice and comment rulemaking. 16 U.S.C. § 1533(a). Unfortunately, by the time species receive protection under the ESA, their populations are generally so small that recovery is an extraordinarily difficult task and many habitat management alternatives are foreclosed. David S. Wilcove et al., *What Exactly Is an Endangered Species? An Analysis of the U.S. Endangered Species List: 1985-1991*, 7 CONSERVATION BIOLOGY 87, 92 (1993). Once a population level falls below a certain threshold, an "extinction vortex" pulls the species inexorably toward extinction. Leah R. Gerber et al., *Measuring Success in Conservation*, 88 AM. SCIENTIST 316, 323 (2000).

10. David J. Mattson & John J. Craighead, *The Yellowstone Grizzly Bear Recovery Program*, in ENDANGERED SPECIES RECOVERY: FINDING THE LESSONS, IMPROVING THE PROCESS 101, 112-25 (Tim W. Clark et al. eds., 1994). Agency actions that harmed grizzly populations often went unchallenged because there was no mechanism to force the agency to disclose supporting data (which did not exist). *Id.*

to avoid being preempted (or, “scooped”¹¹), by other scientists publishing an interpretation of the data first. This corresponds to a tradition that regards analysis or treatment of a data set as justifying only one publication. Adaptive management for species recovery will require a shift in the professional culture of conservation biologists to view the access and disclosure customs in their field more from the perspective of medicine and less from the perspective of the life sciences in which many of them were trained.

In addition to the rapid responses often needed to recover endangered species, most research in conservation biology is also distinguished by a dependence on government resources. The funding for research; the scientific permits allowing researchers to collect, harass, or harm animals; the permission for access to public lands; and the regulation controlling activities to ensure continued existence of imperiled species all point to the pervasive public interest in the resulting information. This public claim for access countervails the customary control researchers exert over data they collect.

In his recent book, *Playing Darts with a Rembrandt*,¹² Professor Sax examined the problem of access and control in the context of cultural treasures, not biological ones. We use the occasion of this special issue to extend a bridge between Professor Sax’s book and his “new age of environmental restoration.” Section II of this article discusses the peculiar challenges of information access and control for endangered species recovery. It highlights the need for avenues of disclosure of data outside of the scientific peer-review process. Section III describes the legal framework for facilitating this disclosure. Though the Freedom of Information Act, the “Shelby Amendment” as interpreted by the Office of Management and Budget, and general principles of administrative law compel some public access to information about endangered species, it is the ESA itself that best supports reforms to ensure prompt information disclosure. Section IV concludes this article with recommendations, principally for reforms to the ESA scientific permitting program, that will promote timely and easy access to endangered species data without sacrificing the rewards for conducting original research.

Results of complex analyses and long-term, cumulative studies legitimately require time to complete, and are perhaps best handled through peer-review publication. But short-term research results, year-to-year monitoring data, and assessments of methods, despite being easier to prepare, are often far less accessible. The ESA conserva-

11. JOSEPH L. SAX, *PLAYING DARTS WITH A REMBRANDT* 168 (1999) (quoting Stephen A. Kaufman, *THE COMPREHENSIVE ARAMAIC LEXICON* (Hebrew Union College, Cincinnati, Ohio) Feb. 1992, at 5).

12. JOSEPH L. SAX, *PLAYING DARTS WITH A REMBRANDT* (1999).

tion and permitting provisions should require prompt availability of this information, which is often overlooked in formal scholarly publication. Rapid release of data would permit better monitoring of endangered species recovery; better dissemination and evaluation of conservation techniques; better communication between cooperating entities; and better-informed participation by outside researchers, oversight groups, and other stakeholders.

In some circumstances, disclosure of data would provide information that would enable people to determine the precise location of individuals in a population of an endangered species. To protect those individuals from harm, statutory reform should allow narrowly drafted exceptions to the general rule of open access. Unfortunately, broad exceptions tempt agencies and other decision-makers to shield their programs from criticism. As grizzly bear management illustrates, any risk that location data might be used for poaching must be balanced against the risk to the species from the lack of any adaptive correction of poor management through outside review.¹³

II. CONSERVATION BIOLOGY AND THE PROBLEMS OF INFORMATION DISCLOSURE

In all fields of experimental science there exists a tension between the desire to control data in order to reap the customary reward of first publication, and the desire to disseminate data that will contribute to the timely advancement of knowledge and the refinement of theory. Traditional notions of ownership emerging from human labor, and sustaining incentives for commitment to an arduous experimental project, bolster the researcher's proprietary interest in controlling analysis of experimental data.¹⁴ Pervasive federal funding of scientific research supports disclosure as part of the public's return on an investment.

In general, professional consensus, not formal rules enforceable through the legal system, balances these competing interests. As Professor Sax has shown, some fields, such as archeology and papyrology (the study of ancient documents written on papyrus), employ strict customs of proprietary rights for researchers who discover or secure possession of sites or scrolls.¹⁵ In these fields, colleagues may wait for decades before researchers release data or documents.

In the natural sciences, disclosure of raw or intermediate data is also a problem.¹⁶ The peer-review process of scholarly publication

13. Mattson & Craighead, *supra* note 10, at 112-25.

14. SAX, *supra* note 12, at 174-75; JOHN LOCKE, SECOND TREATISE OF GOVERNMENT § 27 (1698).

15. SAX, *supra* note 12, at 165-78.

16. *Id.* at 174.

generally mediates conflicts that arise in science.¹⁷ But, conservation biology presents two special complications that disrupt the customary balance in science between a researcher's expectation of first publication and obligation to share information. First, and most importantly, conservation biology, like medicine, is a mission-oriented science.¹⁸ Therefore, it is not simply the advancement of the abstract ideal of scientific understanding that researchers serve. It is also the protection and restoration of biological diversity. In experiments or studies involving species on the brink of extinction (and, adaptive management makes most conservation projects experiments), researchers may need to disclose preliminary or intermediate information to meet the urgent needs of recovery. Researchers may further need to abort an experiment when it jeopardizes the well-being of a species. In this respect, also, conservation biology is like medicine, which requires a researcher to end the experiment (or inform the distinctly affected subject) if, during the course of research, doctors discover some unexpected adverse effect (or some distinct problem, e.g., a malignant tumor, in a particular subject).¹⁹

Second, conservation biology's central (though not entire) aim, the prevention of extinction, coincides with a controversial law and pervasive public control. The ESA imposes special obligations on federal agencies and general restrictions on all persons pertaining to species listed by the Fish and Wildlife Service ("FWS") or the National Marine Fisheries Service ("NMFS") (together, "the Services"). Therefore, federal regulation entangles many conservation biology experiments or studies, which often also involve field work on public lands. Moreover, federal agencies have duties to recovery listed species that may be fulfilled only through better understanding of conservation biology. Researchers need the Services' (and land management agencies') permission to conduct many experiments or observations; and, the Services (and land management agencies) need researchers to provide guidance on meeting legal requirements. Both needs in this relationship between scientists and agencies create additional tensions over the control and disclosure of information.

The traditional reliance on peer-reviewed publication, the gold standard of academic standing and the advancement of knowledge, is inadequate to meet the pressing challenges of ecological restoration. This is not to say that peer review has no value in conservation biol-

17. See generally NAT'L RESEARCH COUNCIL, IMPROVING RESEARCH THROUGH PEER REVIEW (1987); Steven J. Rothman, *A Review of Peer Review*, 48 PHYSICS TODAY 124 (Sept. 1995).

18. Michael Soulé, *What is Conservation Biology?*, 35 BIOSCIENCE 727 (1985).

19. See, e.g., Lawrence K. Altman, *Volunteer in Asthma Study Dies After Inhaling Drug*, N.Y. TIMES, June 15, 2001, at A16; Gina Kolata, *Parkinson's Research Is Set Back By Failure of Fetal Cell Implants*, N.Y. TIMES, Mar. 8, 2001, at A1.

ogy. To the contrary, it is a crucial process for establishing uniformity, credibility, and continuity in the development of theory and knowledge, as it is in other sciences.²⁰ Though full disclosure of data is rarely included in academic journals, often some of the data are presented. And, scientists increasingly turn to the internet “web” to supplement publications with databases. Still, peer review alone has failed to provide the information necessary to succeed in environmental restoration.

One reason why traditional scholarly publication does not provide adequate access to data is that much information about endangered species comes from management activities that lack any explicit research component. Adaptive management’s insistence on regular assessment and readjustment is widely accepted in theory but seldom applied in practice.²¹ Without research objectives, management programs generally lack publication goals and may not even produce unpublished (or, “in-house”) reports.²² Where an agency or contractor does produce reports, they may be quietly shelved, particularly if they do not support agency policy. The variable speed of production and level of detail of these sources of information leave researchers and managers with an inconsistent and incomplete grasp of the health of a species. Also, a management program without research objectives will likely yield information that falls short of good scientific experimental design standards.

However, even where explicit research leads to a traditional peer-reviewed publication, the information disclosed may still be inadequate to meet the needs of adaptive management for environmental restoration. First, peer review is a slow process. The current issue of *Conservation Biology*, the flagship peer-reviewed publication for the scientific discipline that concerns itself most directly with ecological restoration, contains articles that have waited up to twenty-six months between submission and publication.²³ The editor of the journal detects a “simmering crisis” over the disparity between the conservation need for prompt publication and the time required for peer review.²⁴

20. See NAT’L RESEARCH COUNCIL, *supra* note 17.

21. C.S. Holling & Gary K. Meffe, *Command and Control and the Pathology of Natural Resource Management*, 10 *CONSERVATION BIOLOGY* 328 (1996). For examples, see *supra* note 7.

22. These reports are sometimes categorized as “gray literature.” Laura H. Watchman et al., *Science and Uncertainty in Habitat Conservation Planning*, 89 *AMERICAN SCIENTIST* 351, 353 (2001).

23. See, e.g., Richard T. Kazmaier et al., *Effects of Grazing on the Demography and Growth of the Texas Tortoise*, 15 *CONSERVATION BIOLOGY* 1091 (2001) (twenty-six months); M.A. McCarthy et al., *Testing the Accuracy of Population Viability Analysis*, 15 *CONSERVATION BIOLOGY* 1030 (2001) (twenty-five months); David W. Crumpacker et al., *Implications of Climatic Warming for Conservation of Native Trees and Shrubs in Florida*, 15 *CONSERVATION BIOLOGY* 1008 (2001) (twenty-three months).

24. Gary K. Meffe, *Crisis in a Crisis Discipline*, 15 *CONSERVATION BIOLOGY* 303 (2001).

In addition, scientists may delay preparation of submissions for years while they gather data over time or attend to other duties.

Second, even when published, the information contained in peer-reviewed articles may not be complete enough to offer guidance for management. Publications rarely include discussion of problems and failures, leaving managers and subsequent researchers inefficiently solving the same problems and stumbling over the same errors.²⁵ For instance, the designs in neither the black-footed ferret nor the California condor recovery programs enabled information to be collected that could assess the relative risks of different animal release techniques, despite the strong likelihood that techniques differ in effectiveness.²⁶

Information may not be available because no one has the time to write it up, because it is in a report that does not circulate, or because it is held up in the peer-review process. Alternatively, information may be withheld intentionally because of a reluctance (particularly among those who seldom write for a scientific audience) to submit to the sometimes-withering criticism of the peer-review process or to shield a program from close examination in order to secure continued funding.²⁷

For instance, the California condor recovery program began releasing Andean condors to the wild in 1989, and California condors in 1992. The FWS conducted the first release efforts, in southern California, and continues to oversee releases in that area. The Ventana Wilderness Society and the Peregrine Fund conducted subsequent release efforts in central California and in northern Arizona, respectively. These two nonprofit organizations published informal notes from the field at weekly or monthly intervals at public web sites, and the FWS produced an irregularly published newsletter which began as a quarterly but slowed as longer intervals separated each issue. The FWS has not published a newsletter on the condor release program since December, 2000. In twelve years, no participant published, and the FWS did not perform, an analysis of the results of the release program. Not until a group of scientists (including a coauthor of this article) working from outside the recovery program acquired and analyzed the data did it become clear that lack of oversight had permitted poor study design to persist for years, and that mortality rates strongly indicated a need to address threats such as lead poisoning. A

25. *Id.*; D.G. Kleiman et al., *Improving the Evaluation of Conservation Programs*, 14 CONSERVATION BIOLOGY 356 (2000).

26. Vicky J. Meretsky et al., *Demography of the California Condor: Implications for Reestablishment*, 14 CONSERVATION BIOLOGY 957 (2000); Richard P. Reading & Brian J. Miller, *supra* note 7, at 89-90.

27. K.H. Redford & A. Tabor, *Writing the Wrongs: Developing a Safe-Fail Culture in Conservation*, 14 CONSERVATION BIOLOGY 1567 (2000).

properly designed adaptive management program would have required far more timely analysis of available data and the opportunity for independent review of study design and results. Third-party review does not guarantee action—the FWS still has not acted to reduce lead availability to condors in release areas—however, outside pressure is far stronger now that the issue and its implications have been raised in a public forum.

III. LEGAL CONSTRAINTS ON ACCESS AND CONTROL OF ENDANGERED SPECIES INFORMATION

A number of legal mechanisms are available for securing access to information about endangered species. However, each has its limitations. The Freedom of Information Act (“FOIA”) is simultaneously too broad and not broad enough. On one hand, it fails (outside of national parks) to protect precise location data that aid poachers and others seeking to harm endangered species. Even well-intentioned trackers, such as wildlife photographers, may incidentally harass endangered animals. In this respect, FOIA provides too much access. Indeed, in extreme cases, FOIA discourages agencies from acquiring some location data for fear of being forced to disclose them.

On the other hand, FOIA mandates disclosure only of agency records and thus offers no access to information outside of government. And, disclosure under FOIA can be burdensome and protracted. Although the statute mandates prompt time frames for an agency response to an inquiry, these deadlines are frequently not met.²⁸

The Office of Management and Budget (“OMB”) by establishing disclosure conditions for federal research grants under the Shelby Amendment, augments somewhat the administrative requirements for information access. Still, the OMB conditions rely on some form of publication, even if only a reference by an agency making a decision, to trigger disclosure. Therefore, the OMB rules seldom help disseminate preliminary data. Even aside from the special OMB requirements, general principles of administrative law sometimes compel the disclosure of private research data when they are central to an agency rulemaking. However, in order to employ administrative law to compel agencies to acquire and disclose endangered species data, one

28. Though FOIA requires agencies to respond to record requests in twenty days, 5 U.S.C. § 522(a)(6)(A) (1989), agencies are notoriously dilatory in their compliance. In a typical example, the Department of the Interior did not respond with a partial disclosure of data on grizzly bears requested on January 5, 1999 for more than five months, until May 14, 1999. Plaintiff's Memorandum of Law in Support of His Motion for Summary Judgment and in Opposition to Defendant's Motion for Summary Judgment, *Pease v. Babbitt*, No. 1:99-CV-113, at 6 (July 29, 1999).

needs both a final agency action and a meaningful standard of review to overcome deference to agency managerial decisions.

Just as the special characteristics of environmental restoration create special problems for access and control of information, the special duties of the ESA create distinct legal footholds for improving information sharing. Species recovery is an affirmative requirement for all agencies, and the Services have specific obligations to advance species conservation.²⁹ Therefore, the Services and agencies managing habitat need monitoring of the status of endangered species. Because much endangered species research involves some risk of harm, injury, or harassment of individual endangered animals, scientists need permits from the Services to conduct their work. This section concludes with our recommendations for conditioning these permits on periodic reporting to ensure access to information while allowing researchers to retain some control. The Services should use the reporting condition also in negotiating a range of cooperative agreements that deal with meeting the obligations of the ESA.

A. *The Freedom of Information Act*

Data and other information contained in federal agency records are subject to the disclosure provisions of FOIA.³⁰ Upon receipt of a request for information, an agency must disclose any records (which include electronic data, maps, photos, and recordings) that are responsive. FOIA does not require that an agency conduct investigations to answer a public query, or even that an agency retain information. The agency must disclose only whatever records it might currently have that contain relevant information. In deciding whether a document is an agency record for the purposes of mandatory FOIA disclosure, courts consider whether the document is: 1) in the agency's control, 2) generated within the agency, 3) placed into the agency's files, or 4) used by the agency for any purpose.³¹

FOIA requires an agency to comply with requests only if they reasonably describe records. A request that is overly broad or vague may be unreasonable. This does not mean that a requester must identify a particular record. A requester who clearly and specifically describes his or her needs is entitled to records that fulfill those needs. A rule of thumb is that the request must be specific enough to permit a professional employee who is familiar with the subject matter to locate the record in a reasonable period of time.

29. The ESA defines conservation to mean recovery of endangered species to the point where they no longer need the special protections of the ESA. 16 U.S.C. § 1532(3).

30. 5 U.S.C. § 552.

31. *Kissinger v. Reporters Comm. for Freedom of the Press*, 445 U.S. 136, 157 (1980). See generally ALFRED C. AMAN, JR. & WILLIAM T. MAYTON, *ADMINISTRATIVE LAW* § 17.3.1 (1993).

FOIA carves out nine exceptions to the general rule of mandatory disclosure. One exception, that federal natural resources agencies had used until recently to withhold information concerning endangered species, is for internal agency matters the disclosure of which would risk circumvention of a legal requirement.³² The typical materials protected from disclosure under this exception are law enforcement manuals, guidelines and studies (particularly ones that relate to an agency's security vulnerability). By extension, the Forest Service argued that Mexican spotted owl and goshawk nest site information disclosure would make protection of the sites more burdensome. Presumably, public disclosure of the nest locations would direct people wishing to harass the birds to the most sensitive places. However, in 1997, two federal courts of appeals rejected this position of the Forest Service that nest site information should be exempt under the internal agency matters exception.³³ Under FOIA, maps pinpointing nest and bird locations are subject to the general disclosure rule.

Though, under a different exception, agencies may redact analyses and interpretations in reports to protect the government's deliberative process, this exception does not protect purely factual information related to the policy process.³⁴ This exception may protect scientific reports that interpret technical data insofar as the opinion of an expert reflects a deliberative phase of policy making. It may even protect parts of pre-decisional documents that select certain facts out of a larger body of data. Raw data, however, generally remain subject to the mandatory disclosure policy of FOIA.

Another noteworthy exception from mandatory disclosure under FOIA is for matters specifically exempt from disclosure by a statute that either provides no discretion to disclose or that establishes particular criteria for withholding.³⁵ For instance, the Archaeological Resources Protection Act of 1979 ("ARPA")³⁶ prohibits release of information concerning the nature and location of protected archeological resources unless the relevant agency official determines that disclosure would further the purposes of ARPA and create no risk of harm to the resources.

Strangely, though many of the same concerns about illegal removal of or harm to protected resources apply to endangered species conservation,³⁷ there is no analogous provision in the ESA triggering

32. 5 U.S.C. § 552(b)(2).

33. *Maricopa Audubon Soc'y v. U.S. Forest Serv.*, 108 F.3d 1082 (9th Cir. 1997); *Audubon Soc'y v. U.S. Forest Serv.*, 104 F.3d 1201 (10th Cir. 1997).

34. 5 U.S.C. § 552(b)(5).

35. *Id.* at § 552(b)(3).

36. 16 U.S.C. §§ 470aa-470ll (1994).

37. *See, e.g.*, NAT'L RESEARCH COUNCIL, COMM. FOR A STUDY ON PROMOTING ACCESS TO SCIENCE AND TECHNOLOGY DATA FOR THE PUBLIC INTEREST, A QUEST FOR BALANCE: PRI-

an exception from mandatory disclosure under FOIA for sensitive information, such as nesting or denning sites.³⁸ In a partial effort to respond to this lacuna in endangered species law, Congress, in 1998 legislation primarily dealing with national park concession policy but also addressing research needs, enacted a provision allowing the National Park Service to withhold information concerning the “nature and specific location of a National Park System resource which is endangered, threatened, rare, or commercially valuable”³⁹ The statute provides criteria for releasing this information that is similar to ARPA standards:

- (1) disclosure of the information would further the purposes of the unit of the National Park System in which the resource . . . is located and would not create an unreasonable risk of harm . . . ; and
- (2) disclosure is consistent with other applicable laws protecting the resource⁴⁰

While the need for statutory protection of precise location information that would jeopardize endangered species is clear after the 1997 *Audubon* cases,⁴¹ this new Park Service legislation goes too far. With no guidance on how to interpret its terms, the legislation excludes from disclosure not only precise location data but also information concerning the “nature” of an endangered species. This broad authority, unfortunately, is an invitation for agencies to withhold whatever national park endangered species information might cause embarrassment or contradict desired outcomes. Moreover, if read broadly, the statute might allow the Park Service to withhold information whenever it finds that disclosure would fail to “further the purposes of the unit.”⁴² Such insulation from outside criticism would weaken adaptive management for environmental restoration. While disclosing certain information may increase the risk of harm to some endangered species, this must be balanced against the serious risk to

VATE RIGHTS AND THE PUBLIC INTEREST IN SCIENCE AND TECHNOLOGY DATABASES 12 (1999) (statement of Barbara Ryan, Assoc. Director for Operations, U.S. Geological Survey: “publication of endangered species data sometimes results in further harm to the species at the hands of those who wish to possess rare commodities”).

38. Like the 1979 ARPA, the 1973 ESA post-dates the 1966 FOIA, Pub. L. No. 89-487, 80 Stat. 250.

39. National Park Omnibus Management Act of 1998, Pub. L. No. 105-391, § 207, 112 Stat. 3501 (1998) (codified at 16 U.S.C. § 5837 (1999)). The legislative history of the statute is dominated by discussion of concession management. There is nothing enlightening in the legislative history to aid in the interpretation of the provision dealing with information disclosure. *See, e.g.*, H. REP. NO. 105-767 (1998); S. REP. NO. 105-202 (1998).

40. 16 U.S.C. § 5837.

41. *See supra* note 33 and accompanying text.

42. Such an extreme interpretation, however, would push the boundaries of what constitutes “particular criteria” for withholding information. *See Am. Jewish Cong. v. Kreps*, 574 F.2d 624, 628-29 (D.C. Cir. 1978) (requiring a precise formula whereby an agency may determine whether disclosure would pose the hazard that Congress foresaw).

recovery of excluding timely, external review of natural resource management decisions.⁴³

The Interior Department has relied on a broad interpretation of this Park Service provision to withhold data about grizzly bear behavior from at least one academic scientist interested in evaluating the effects of current federal land management practices.⁴⁴ Professor Craig Pease sought historical location data on grizzly bears to determine how the bruins become habituated to humans, which is a behavior that ultimately leads to a doubling of the mortality rate for the bears.⁴⁵ Grizzly bear recovery is one of the most politically charged endangered species issues.⁴⁶ Professor Pease's collaborator, David Mattson, had his office files removed, computer documents deleted, his mail screened, and his travel budget slashed by his superiors while serving as a field ecologist for the Yellowstone Interagency Grizzly Bear Study Team because of his criticism of the federal government's approach to bear recovery.⁴⁷ Although the Interior Department may have exercised reasonable caution in withholding current location data for existing bears, its categorical denial of historic information on all bears, whether alive or dead, illustrates the temptation toward secrecy that discretionary control of data engenders. Knowing the historic roaming patterns of grizzly bears through their enormous range would not enable poachers to pinpoint their locations in the manner that release of current owl nest sites would. Probably the Interior Department interpreted its new authority broadly to avoid the risk of criticism of its intention to remove the grizzly bear from the list of protected species under the ESA.⁴⁸ The Department justifies broad, exclusive control over the location data, in part, by asserting the classic science counterweight to disclosure: that government scientists should have the first opportunity to analyze the data before releasing it to others.⁴⁹

So, with some narrow exceptions (e.g., for certain Park System resources), when a federal agency itself, such as FWS, conducts re-

43. Tim W. Clark et al., *supra* note 5, at 425.

44. Pease v. Babbitt, Civ. No. 1:99-CV-113 (Sept. 20, 1999).

45. Plaintiff's Memorandum of Law in Support of His Motion for Summary Judgment and in Opposition to Defendant's Motion for Summary Judgment, Pease v. Babbitt, No. 1:99-CV-113, at 3 (July 29, 1999).

46. See, e.g., Todd Wilkinson, *Grizzly War*, HIGH COUNTRY NEWS, Nov. 9, 1998; Emily Miller, *Trouble for Grizzly Bear Recovery Plan*, HIGH COUNTRY NEWS, Aug. 14, 1997.

47. Wilkinson, *supra* note 46. The suppression of Mattson and his data is also noted in FREDERICK WAGNER, *WILDLIFE POLICIES IN THE NATIONAL PARKS* 103 (1995); *Oversight Hearing Before the Subcomm. on National Parks and Public Lands of the House Comm. on Resources*, 105th Cong. 34 (1997) (testimony of Dean Wagner).

48. Semiannual Regulatory Agenda, 64 Fed. Reg. 64482, 64521-22 (1999) (including de-listing of grizzly bear as an expected long-term regulatory action).

49. Defendant's Memorandum in Opposition to Plaintiff's Cross-Motion for Summary Judgment, Pease v. Babbitt, No. 1:99-CV-113, at 12 (Aug. 12, 1999). This justification, however, has no basis in FOIA.

search, the public generally has access to the information generated through FOIA. When a federal agency acquires (e.g., through a condition in a research permit) endangered species data gathered by others, then the public usually has access to the records under FOIA. However, scientists working for universities and other non-profit institutions, who conduct most conservation biology studies, frequently do not operate under permits with species reporting requirements. What obligation do these scientists outside of the agencies have to disclose information? Some legal obligation may arise from strings attached to federal research awards.

B. *The OMB Disclosure Requirements Under the Shelby Amendment*

The principle that “what the federal government funds, the public is entitled to see” may be fair, but the actual law is considerably less expansive and more complicated. In 1998, Congress sought to ensure that “all data produced” from federal awards of grants be available to the public through the procedures established under FOIA.⁵⁰ Buried on page 496 of a 920-page omnibus appropriations bill, the provision, commonly called the “Shelby Amendment,” delegates implementation to the OMB through the administrative requirements for federal grants and agreements with non-profit organizations (including universities).

In 1999, the OMB published the new disclosure requirements.⁵¹ In promulgating its interpretation of the legislation, the OMB purported to balance three goals: 1) the advancement of the public interest in widely available information, 2) the maintenance of the traditional scientific process to ensure that research may continue to progress, and 3) the establishment of practical implementation procedures for public access. The most significant concern of the scientific community with the new disclosure condition of federal funding was that researchers would be forced to work in a “fishbowl” that would unveil data and research methods prematurely. The OMB responded to this concern by stressing that the disclosure requirements would protect the confidentiality of data while research is ongoing.⁵²

The OMB requirements clarify that the federal government has the right to obtain and use data produced under an award. Such data would then be subject to FOIA. However, if the federal government

50. Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999, Pub. L. No. 105-277, 112 Stat. 2681-495 (1998).

51. OMB Circular A-110, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations, 64 Fed. Reg. 54926 (1999).

52. *Id.* at 54927.

itself fails to act to obtain the data, the OMB interprets the 1998 legislation to obligate awardees to respond to a FOIA request for “research data relating to published research findings produced under an award that were used by the Federal Government in developing an agency action that has the force and effect of law”⁵³ The OMB materials define research data as “recorded factual material commonly accepted in the scientific community as necessary to validate research findings,” and specifically exclude “preliminary analyses, drafts of scientific papers, plans for future research, peer-reviews, or communications with colleagues.”⁵⁴ The OMB requirements bind all federally funded research, even if the federal support is a small proportion of the total research budget. As “faith-based” social programs are now discovering, federal strings come attached to the very first (even if the only) dollar of government money.

The key action triggering disclosure under the OMB requirements is publication. Unless the data requested by a member of the public (including a fellow scientist) are published, researchers have no obligation to disclose. Absent publication, data are unavailable unless: 1) a federal agency obtains them, 2) some other obligation (e.g., in a permit or cooperative agreement) requires disclosure, or 3) the researcher volunteers them. For the purposes of the OMB requirements, data are considered published not only when they appear in a peer-reviewed scientific or technical journal. Data are also considered published when a “[f]ederal agency publicly and officially cites the research findings in support of an agency action that has the *force and effect of law*.”⁵⁵

The question of what constitutes “an action that has the force and effect of law”⁵⁶ is one that will likely generate some conflict in the coming years. The OMB interpretive material states that a rule (such as an ESA listing or delisting decision) or an administrative order (such as the issuance of a permit) falls within the meaning of the key phrase. In contrast, agency guidance documents fall outside of the agency actions that trigger publication under the OMB requirements.⁵⁷ On which side of the divide does an endangered species recovery plan fall?

The recovery plan, an ESA requirement for all protected species,⁵⁸ contains three elements. First, each plan contains a description

53. *Id.* at 54930.

54. *Id.* This exclusion parallels FOIA disclosure exception for deliberative material. See *supra* note 34 and accompanying text.

55. *Id.* (emphasis added).

56. *Id.*

57. *Id.* at 54929.

58. 16 U.S.C. § 1533(f) (1999). A single recovery plan may cover several species linked by common habitat or threat. As of February 20, 2001, 975 species had approved recovery plans.

of “site-specific management actions” necessary for recovery.⁵⁹ These actions are divided into three priority levels: urgent tasks necessary to prevent extinction, tasks that forestall significant further decline, and long-term tasks required for full recovery. Second, the plan must provide “objective, measurable criteria” for determining when the species has recovered.⁶⁰ Third, the plan includes estimates of the time and money required to meet recovery and intermediate goals that lead toward recovery.⁶¹ Good monitoring information is necessary to implement all three of these elements, but especially the second.

The Services do not regard the plans as binding, and courts generally have refused to compel implementation of plans.⁶² In this narrow sense, then, the recovery plan does not have the force and effect of law because it is mere guidance.⁶³ From this perspective, the recovery plan does not trigger “publication” for information disclosure under the OMB requirements. However, courts will require the Services to prepare adequate plans. For instance, courts have remanded recovery plans to the FWS for failure to provide objective, measurable criteria for recovery that addressed the factors on which the listings were based.⁶⁴ In this respect, courts treat the recovery plan like the environmental impact statement under the National Environmental Policy Act:⁶⁵ courts will compel agencies to prepare the document, and to rewrite the document if its content does not meet the statutory criteria; however, courts will not compel agencies to implement the provisions discussed in the document. So, if “an action that has the force and effect of law” corresponds to “agency actions” under the Administrative Procedure Act (“APA”) that are subject to judicial review,⁶⁶ then studies cited in recovery plans do trigger the OMB requirements for disclosure. As illustrated below, the APA itself will compel agencies to include information supporting “agency actions” in the public

U.S. FISH & WILDLIFE SERV., THREATENED AND ENDANGERED SPECIES SYSTEM BOX SCORE, <http://ecos.fws.gov/tess/html/boxscore.html> (last visited July 10, 2001).

59. 16 U.S.C. § 1533(f)(1)(B)(i).

60. *Id.* at § 1533(f)(1)(B)(ii).

61. *Id.* at § 1533(f)(1)(B)(iii).

62. *See, e.g.*, Nat'l Wildlife Fed'n v. Nat'l Park Serv., 669 F. Supp. 384 (D. Wyo. 1987). Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 *ECOLOGY L.Q.* 1, 26, 58-59 (1996). *But see* Sierra Club v. Lujan, No. MO-91-CA-069, 36 *Env'tl Rep. Cas.* (BNA) 1533, 1541, 1993 WL 151353, at *8 (W.D. Tex. Feb. 1, 1993), *appeal dismissed*, Sierra Club v. Babbitt, 995 F.2d 571 (5th Cir. 1993) (requiring the FWS to develop and implement a recovery plan).

63. *Fund for Animals v. Rice*, 85 F.3d 535, 547 (11th Cir. 1996) (recovery plan is “for guidance purposes only”); *Defenders of Wildlife v. Lujan*, 792 F. Supp. 834, 835 (D.D.C. 1992) (recovery plan is not an “action document”). *See* Federico Cheever, *Recovery Planning, the Courts, and the Endangered Species Act*, 16 *NAT. RESOURCES & ENV'T* 106, 109 (2001).

64. *See, e.g.*, *Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 133-34 (D.D.C. 2001) (remand of Sonoran pronghorn plan); *Fund for Animals v. Babbitt*, 903 F. Supp. 96, 110-14 (D.D.C. 1995), *opinion amended by* 967 F. Supp. 6 (D.D.C. 1997) (remand of grizzly bear recovery plan). *See* Cheever, *supra* note 63, at 109-10.

65. 42 U.S.C. §§ 4321-4345 (1989).

66. 5 U.S.C. §§ 551(13), 702 (1989).

administrative record.⁶⁷ The better interpretation of the OMB rule would compel disclosure for at least those agency decisions, such as adoption of a recovery plan, subject to the judicial review requirements of a contemporaneous agency record containing the supportive information.

C. *Disclosure Under the ESA*

The ESA is the legal cornerstone for environmental recovery. As Aldo Leopold famously observed, “to keep every cog and wheel is the first precaution of intelligent tinkering.”⁶⁸ Species are essential elements of our diverse ecosystems. Because the ESA imposes relatively stringent duties on scientists and agencies, it provides specific authority to put into practice the general principles of information disclosure. In particular, the federal government’s duty to recover species, and the scientists’ obligation to secure permits to engage in research that impacts endangered species, require improved access to data.

1. *Listing*

At least with respect to agency rulemaking, the OMB requirements are not an abrupt departure from existing administrative law. For instance, in a celebrated 1994 decision, a federal court found the FWS listing of the coastal California gnatcatcher to violate the ESA and APA⁶⁹ because the public administrative record did not contain the underlying raw data supporting a disputed scientific paper.⁷⁰ In the gnatcatcher controversy, the listing of the subspecies hinged on whether its geographic range extended southward to thirty degrees, north, latitude, in which case it qualified for protection under the ESA, or whether its geographic range extended southward to twenty-five degrees, north, latitude, in which case its range included populations sufficient to preclude listing. In 1988, Dr. Jonathan Atwood of the Manomet Bird Observatory prepared a report in which he interpreted his field data describing variations in California gnatcatcher morphology to establish the more southerly boundary to the subspecies’ range. After peer review of the paper, Dr. Atwood revised his conclusions in 1990 to establish the southern boundary at thirty degrees. Based partly on Atwood’s revised paper, in 1993 the FWS

67. *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 419-20 (1971); *see infra* notes 69-80 and accompanying text.

68. ALDO LEOPOLD, *A SAND COUNTY ALMANAC WITH OTHER ESSAYS ON CONSERVATION FROM ROUND RIVER* 177 (Oxford Univ. Press 1966) (1949) (The Round River).

69. Relevant provisions include 5 U.S.C. §§ 553, 701, 702, and 706.

70. *Endangered Species Comm. of the Bldg. Indus. Ass’n of Southern Cal. v. Babbitt*, 852 F. Supp. 32 (D.D.C. 1994).

listed the coastal Californian gnatcatcher to receive protection under the ESA as a subspecies.⁷¹

During the comment period for the proposed listing, the future plaintiffs in the litigation, including the local builders' trade association, made requests for the raw data to both the FWS and to Atwood himself. In the listing, the FWS had reviewed only the scientist's reports, not the raw data. Since the federal agency had not reviewed the raw data in making its determination, they were not agency records. Therefore, the FWS did not disclose them. Atwood himself refused to disclose the information to the future plaintiffs because he believed that they were on "some sort of statistical 'witch hunt'."⁷²

The court found the listing to be illegal because the trade association had not been able to review and comment on the raw field data, which played an important role in determining the range of the subspecies. The court cited the general principle of administrative law that when an agency relies on data to craft a rule, it generally must provide those data for public review.⁷³ In this case, the federal government argued that it did not rely on the raw data, as such, but instead relied on scientific reports based on the data. The court viewed this claim skeptically.

In addition, the ESA requires that listing decisions be based solely on the "best scientific and commercial data available."⁷⁴ Though some courts have allowed agencies to rely on reports interpreting data rather than the data themselves, the gnatcatcher court distinguished the litigation at issue because the Atwood reports were highly disputed.⁷⁵ When a controversy surrounds interpretation of data in a report, the court concluded, the law requires that the data be disclosed for public review. In making this finding, the court distinguished the legal process from scientific peer review, which (according to an American Ornithological Union statement in the record) does not usually require an ornithologist to provide the underlying raw data to support a scientific paper.

The outcome of the gnatcatcher case is consistent with the current requirements of the OMB. However, it is important to note that there was no question that the data involved in the controversy were final, not preliminary. Atwood had published his papers, and they had undergone traditional peer review. The much more difficult case faced today by people interested in monitoring species conservation

71. Under the ESA, "species" protected may be biological species, subspecies, or any distinct population segment of vertebrates that interbreeds when mature. 16 U.S.C. § 1532(16).

72. 852 F. Supp. at 34.

73. *Id.* at 36.

74. 16 U.S.C. § 1533(b)(1)(A).

75. 852 F. Supp. at 37.

efforts is access to data that researchers claim is preliminary. The only ESA circumstance where a court has compelled release of preliminary information involved the FWS listing of the Bruneau Hot Springs snail as an endangered species.⁷⁶ The court found that a “provisional” U.S. Geological Survey report did not merely supplement or confirm existing data.⁷⁷ Instead it “provided the only scientific information on the cause of the decline in spring flows,” which destroyed the snail habitat.⁷⁸ Therefore, the Service should have given the public an opportunity to review and comment on the report.

However, in the absence of some final agency action reviewable under the terms of the APA,⁷⁹ we currently lack a mechanism for compelling access to unpublished species information. Federal agencies argue that disclosure of grizzly bear data would be premature until the data are published at some indeterminate time in the future, likely when a delisting rule is published and critics face a brief period in which to comment.⁸⁰ At that point, useful outside scientific scrutiny will be difficult, given the unpredictable and brief time frame.

It is also important to note that the FWS used the Atwood conclusion to support a notice and comment rulemaking, a relatively involved administrative process. Even preparation of a recovery plan requires a supporting administrative record.⁸¹ The more difficult case faced today involves administrative actions that are less formal, such as management decisions about where, when, and how to close roads or release birds. Though the broadly applicable principles of FOIA and the OMB requirements for federally funded research leave these issues open to debate, the ESA itself provides additional law promoting disclosure where listed species are involved.

2. Other ESA Duties and the Need for Reporting Requirements in Permits

The ESA imposes an affirmative, but nonspecific duty on federal agencies to contribute to the recovery of listed species. Although courts consistently hold that the duty to conserve requires some action, or some reason why the agency has not acted, they seldom set

76. *Idaho Farm Bureau Fed'n v. Babbitt*, 53 F.3d 1392 (9th Cir. 1995) (remanding the endangered species listing decision for the Bruneau Hot Springs snail).

77. *Id.* at 1402.

78. *Id.* at 1403.

79. 5 U.S.C. § 551(13) (1989) (defining “agency action” as “a rule, order, license, sanction, relief, or the equivalent or denial thereof, or failure to act”); 5 U.S.C. § 702 (providing judicial review for “agency action”).

80. The administrative procedure for delisting parallels the one for listing. 16 U.S.C. § 1533(c)(2). For a thorough analysis of delisting issues, see Holly Doremus, *Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation*, 30 ENVTL. L. REP. 10434 (2000). The comment period for proposed delistings may be as brief as forty-five to sixty days.

81. *See supra* note 64.

out precisely what it requires or rely on it as the sole basis for overturning an agency's decision.⁸² In order to explain how they are meeting this duty, the agencies need information on the relationship between their programs/actions and the effects on the listed species. This duty, then, creates a federal demand to generate or acquire records containing conservation biology data. In this section, we recommend that agencies modify ESA permits and cooperative agreements to require periodic monitoring or reports. This will provide the agencies and the public alike with better information on how well agencies are meeting their ESA recovery duties. Most researchers already operate under permits and agreements, which provide a vehicle for advancing the public interest in species recovery.

Other, more specific, requirements of the ESA strengthen the case for better central reporting of endangered species information. As discussed in section III(B), above, the Services have special responsibilities to develop recovery plans for listed species.⁸³ Among other things, the plans include "site-specific management actions" necessary for recovery and "objective, measurable criteria" for determining when the species has recovered.⁸⁴ A separate provision of the ESA prohibits federal agencies (including the Services) from authorizing any activity (or issuing a permit) that is likely to jeopardize the continued existence of a listed species. It is difficult to fathom how agencies can fulfill these duties without improved information and review.

The broadest proscriptions of the ESA apply to everybody and ban a wide range of activities that injure, harm, harass, wound, trap, capture or collect individual endangered animals.⁸⁵ Harm includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."⁸⁶ Research on and management of endangered species often involves manipulation of habitat or close examination that might run afoul of these ESA prohibitions.

However, the Services issue permits to allow these otherwise prohibited activities for "scientific purposes or to enhance the propaga-

82. ROBERT L. FISCHMAN & MARK S. SQUILLACE, ENVIRONMENTAL DECISIONMAKING: NEPA AND THE ENDANGERED SPECIES ACT 175-76 (3d ed. 2000); 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 (1995). *But see* Sierra Club v. Glickman, 156 F.3d 606, 615 (5th Cir. 1998) (holding that the U.S. Department of Agriculture violated the affirmative conservation duty by failing to develop an organized program for utilizing its authorities for the conservation of listed species dependent on the Edwards Aquifer in Texas).

83. *See supra* notes 58-63 and accompanying text.

84. 16 U.S.C. § 1533(f)(1)(B)(i)-(ii).

85. *Id.* at §§ 1532(19), 1539(a).

86. 50 C.F.R. § 17.3 (2000).

tion or survival” of listed species.⁸⁷ This science and enhancement permit is a close cousin of the better-known incidental take permit, described in Professor Sax’s article.⁸⁸ However, the science and enhancement permit does not require a habitat conservation plan, the most controversial and burdensome element of an incidental take permit. Other than specifying that the permitted activities should be “for scientific purposes or to enhance the propagation or survival of the affected species,”⁸⁹ the statute contains no special requirements for the content of the permit. Most research involving listed species requires this science/enhancement permit. The ESA grants broad authority to the Services to condition a research permit on terms to promote recovery of the species.⁹⁰ As with all permitting decisions, the issuance of a science/enhancement permit requires the Service to comply with the ESA requirement to ensure that any action authorized does not jeopardize the continued existence of an endangered species or adversely modify critical habitat.⁹¹

In order to prevent jeopardy and contribute to recovery, the Services need information on the status of listed species, the efforts underway to recover them, the likely impact of proposed activities on listed species, and the cumulative impacts of other ongoing or proposed activities. In an effort to make the most of existing research, the Services ought to condition research permits on periodic reporting of collected data. Reports should include observations of conditions that may warrant further investigation by the agency (e.g., possible illegal activities, or problems outside the expertise of the researcher that might require other expert opinion or research); assessments of monitoring, research, or management techniques employed; and results relevant to conservation of the species.

Permits to discharge or emit otherwise prohibited pollutants commonly contain reporting conditions to allow the regulating agencies and the public to monitor the environment.⁹² For research permits under the ESA, the fit between specified data reporting and the per-

87. 16 U.S.C. § 1539(a)(1)(A).

88. Sax, *supra* note 2, at 5.

89. 16 U.S.C. § 1539(a)(1)(A).

90. *Id.* at § 1539(a)(2)(B). The science permit program receives little outside scrutiny and there is a wide variation from region to region in how the Services implement it. For instance, in FWS Region 2 (the Southwest Region), researchers fill out Form 3-200, Federal Fish and Wildlife License/Permit Application, to obtain their own individual permit. The FWS cannot grant the permit until it publishes notice of the application to provide opportunity for public comment under 16 U.S.C. § 1539(a)(2)(B). In FWS Region 6 (the Mountain-Prairie Region), the regional director holds a scientific permit and researchers request status as subpermittees without the need to apply for individual permits.

91. 16 U.S.C. § 1536(a)(2).

92. *See, e.g.*, 33 U.S.C. § 1342(a)(2) (1987) (NPDES permit conditions on data and information collection and reporting); 40 C.F.R. § 122.41(h) (2000) (duty of permittee to provide information); *id.* at § 122.41(l) (reporting requirements, including periodic discharge monitoring reports in permits).

mit purpose is much tighter because the very purpose of the permit often is to collect information. Though the research may harm a species in the short-run, we allow it to continue because we believe it will benefit recovery in the long term. Access to research information can secure that long-term benefit.

It is long past time for the Services to promote more assertively the public conservation interest through permit conditions on scientific and enhancement permits. The reporting requirements we recommend here would also improve incidental take permits, which need better documentation of monitoring and of implementation of takes and mitigation.⁹³ The details of the timing and content requirements may be tailored by the Services to particular circumstances, but reports should allow responsible review of activities at least annually. The Services themselves should meet this reporting requirement where they directly engage in monitoring, management, enhancement and scientific activities. Moreover, the Services should incorporate reporting conditions into cooperative agreements with states, universities, and nonprofit organizations. These agreements are important existing tools with which the Services coordinate species management, habitat enhancement, and research. Safe harbor agreements⁹⁴ and conservation agreements,⁹⁵ two relatively recent innovations in the ESA program, likewise must include regular information disclosure. Permits and agreements should also require quick notification of unanticipated adverse impacts to endangered species, as is already the case with incidental take statements attached to biological opinions issued by the Services as a result of formal consultation.⁹⁶ These re-

93. PETER KAREIVA ET AL., USING SCIENCE IN HABITAT CONSERVATION PLANS 3-4 (1999), available at <http://www.nceas.ucsb.edu/projects/hcp> (summarized in Frances James, *Lessons Learned from a Study of Habitat Conservation Planning*, 49 *BIOSCIENCE* 871 (1999)). While the FWS disagreed with the report's conclusions about the lack of biological information, it has recently amended its HCP handbook to provide for measurable biological objectives, incorporate adaptive management, and develop better monitoring. U.S. FISH & WILDLIFE SERV., U.S. FISH AND WILDLIFE SERVICE'S RESPONSE TO AIBS/NCEAS'S STUDY USING SCIENCE IN HABITAT CONSERVATION PLANS, available at <http://endangered.fws.gov/hcp/response.htm> (last visited Sept. 21, 2000); Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35242 (June 1, 2000) (to be codified at 50 C.F.R. parts 13 and 17).

94. Safe harbor agreements allow a landowner to enhance habitat in exchange for a shield from liability for its subsequent destruction. See *Safe Harbor Agreements and Candidate Conservation Agreements with Assurances*, 64 Fed. Reg. 32706 (June 17, 1999). See also J.B. Ruhl, *Who Needs Congress? An Agenda for Administrative Reform of the Endangered Species Act*, 6 *N.Y.U. ENVTL. L.J.* 367 (1998).

95. Conservation agreements may defer listing of species in exchange for conservation actions. See *id.*; Robert L. Fischman, *Endangered Species Conservation: What Should We Expect of Federal Agencies?*, 13 *PUB. LAND L. REV.* 1 (1992); *Announcement of Final Policy for Candidate Conservation Agreements with Assurances*, 64 Fed. Reg. 32726 (June 17, 1999).

96. Formal consultation is the process by which agencies, including the Services themselves, meet their duty to ensure that actions authorized, funded and carried out by them do not jeopardize the continued existence of endangered species or adversely modify critical habitat. 16 U.S.C. § 1536 (1999).

porting requirements would provide the Services with information they are already bound to collect.

Scientists currently benefit from internet web sites that post ongoing information about field or captive programs in support of endangered species recovery.⁹⁷ Furthermore, written reports are often already required by state agencies that issue permits,⁹⁸ by the National Park Service and other federal agencies for research on their lands,⁹⁹ and by funding sources as well. Annual reports do not impede the simultaneous preparation of manuscripts for publication; indeed, they might encourage it. Annual reports would not need to contain the kinds of advanced analysis and synthesis associated with full-blown, peer-reviewed publications. Researchers can provide appropriate caveats to deflect overly enthusiastic interpretation of results and to educate readers regarding the uncertainties. A display of reports on a web site would provide a central location to facilitate work by researchers, resource managers, educators, students, and the general public. Though mechanisms to protect precise location data for species vulnerable to persecution would need to be a part of any system of access, these need not greatly reduce the available information.

IV. CONCLUSION

Our current, haphazard approach to endangered species research provides too little information. Peer-reviewed publication is a traditional and essential method of dispersing information; and, in the contentious and passionate atmosphere that surrounds endangered species, peer review can be an important tool for careful evaluation of methods and results. But, peer review also demands hopeful patience without providing any guarantee that desired data will appear. Moreover, exactly those programs that may be most in need of review—resource management without explicit research components—have the least exposure to it.

97. In the case of the Meretsky et al., research, discussed *supra* note 26 and accompanying text, web sites supported by the Peregrine Fund and Ventana Wilderness Society were excellent sources of information on dates and suspected or confirmed causes of mortality; and numbers, ages and sexes of released birds. See, e.g., VENTANA WILDERNESS SOC'Y, CONDOR REINTRODUCTION: NOTES FROM THE FIELD, <http://www.ventanaws.org/fldnotes.htm>; PEREGRINE FUND: NOTES FROM THE FIELD, http://www.peregrinefund.org/notes_condor.html#notes from the field. The U.S. Fish and Wildlife Service maintains a web page on which it posts recovery plans. U.S. FISH & WILDLIFE SERV., THE ENDANGERED SPECIES PROGRAM, <http://endangered.fws.gov/recovery/recplans/index.htm>. The volume and usefulness of web-based information vary widely from agency to agency, but access is generally increasing.

98. See, e.g., ARIZ. ADMIN. CODE R12-4-418(G) (2001) (requiring a written report at the end of the term of each “scientific collecting permit”); UTAH ADMIN. CODE R657-3-16 (2001) (requiring a report for “collection, importation, transportation, and possession of zoological animals” permits). One of the coauthors has engaged in scientific research under permits requiring reports in the following states: Arizona, Indiana, Utah.

99. See, e.g., NAT'L PARK SERV., RESEARCH PERMIT AND REPORTING SYSTEM, http://science.nature.nps.gov/servlet/Print_PubIndex.

Annual reports are not reviews, but they can provide informal opportunities for outside comment, which is far more useful as a course correction for adaptive management than a post mortem.¹⁰⁰ If annual reports can provide a less threatening forum for comment, the result may be improved evaluations during formal review. This will eventually reduce resistance to the whole process. Impartial, periodic review of management efforts is imperative for successful recovery.¹⁰¹

Proprietary reluctance to share widely endangered species information is in neither our own best interests nor in the species' best interests. Annual reporting requirements in exchange for permission to study the public's biological treasures is a fair balance between access and control. Such a requirement would provide a venue for reporting minor insights and advances that might otherwise go unpublished. Centrally and promptly available internet web reports can benefit listed species, individual researchers, and the conservation effort; and, they would be much harder to ignore than reports whose existence is less well known.

Because the Services will bear the brunt of collecting and posting the reports, they will need additional budget monies and personnel to prepare their own reports and assemble the rest. However, unlike recent budget battles over funding the ESA listing program, increased efficiency, sounder science, and public information have widespread support irrespective of party or environmental affiliation.¹⁰² Increased demand for ready access to public information grows every day, and technology facilitates compliance with information responsibilities to endangered species far more easily now than ever before.¹⁰³

The inability of agencies to withhold precise data for current nesting, denning, and other relatively static locations outside of the national parks cannot be so easily remedied with an administrative initiative. Congress must provide a narrowly drawn exception to the general disclosure rule of FOIA for this information where it pinpoints endangered species under circumstances where access would

100. See, e.g., D.G. Kleiman et al., *Improving the Evaluation of Conservation Programs*, 14 CONSERVATION BIOLOGY 356 (2000).

101. Clark et al., *supra* note 5, at 425.

102. For instance, the portion of the National Park Omnibus Management Act of 1998, *supra* note 41, designed "to encourage the publication and dissemination of information derived from studies in the National Park System," 16 U.S.C. § 5931(5) (1999), and to "assure the full and proper utilization of results of scientific study for park management decisions," 16 U.S.C. § 5936, received strong support from both Senator Craig Thomas (a Wyoming Republican generally hostile to environmental protection measures) and Charles Clusen, Senior Policy Analyst for the Natural Resources Defense Council. *Hearings on S. 1693 Before the Subcomm. on National Parks, Historic Preservation and Recreation of the Senate Comm. on Energy and Natural Resources*, 105th Cong. (1998).

103. In the pollution control field, annual reporting of toxic releases has spurred important preventive measures to improve environmental quality. See Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257 (2001).

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risk jeopardy to the species. The lesson of the 1998 Park Service legislation is that where Congress provides agencies with broader discretion to withhold information, they will insulate less sensitive data from public scrutiny. This secrecy may ultimately be more harmful to the recovery effort than the loss of several animals to poachers.

None of us likes annual physical exams, but we admit the usefulness of the information, and, more grudgingly, the chance to have our complacency regarding our health shaken a bit. A required annual physical for our endangered species, delivered by those who work with them, or whose work affects them, is in everyone's best interests. The "new age of environmental restoration" demands it.