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A Lesson for Conservation from Pollution Control Law: Cooperative Federalism for Recovery Under the Endangered Species Act

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A Lesson for Conservation from Pollution Control Law: Cooperative Federalism for Recovery Under the Endangered Species Act

Robert L. Fischman & Jaelith Hall-Rivera*

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I. INTRODUCTION

The past decade has witnessed a remarkable transformation in the implementation of the Endangered Species Act ("ESA" or "Act"). The statute has grown beyond its roots as a resource management law relying primarily on interagency consultation and prohibitive policy. Today, the statute's most visible component is a permit program for private landowners who seek to modify habitat that might harm threatened or endangered animals. This shift from a resource management to a regulatory paradigm reflects an important convergence between traditional conservation law and more recent pollution control law of the past thirty years.

While this transformation has been, on the whole, a salutary development in environmental law generally and a boost for endangered species protection in particular, it has not realized its full potential. Because the recent developments have focused almost exclusively on the incidental take permit provision of ESA Section 10(a), their ability to promote comprehensive conservation planning has been limited to the terms of that section. This article proposes a further shift in focus from Section 10(a) to Section 4(d). Such a shift, while not forsaking the progress of the past decade, would promote greater borrowing from the successes of pollution control law and achieve more in species conservation. Most notably, greater reliance on 4(d) rules would harness the partnership of cooperative federalism to promote species recovery.

Section 4(d) of the Act allows the federal government to issue special rules for the recovery of certain species listed as threatened with extinction. These "4(d) rules" can tailor the otherwise broad, ill-defined prohibitions against harming protected species to fit the particular circumstances of a species, ecosystem, or region. Although seldom used creatively in the past to customize prohibi-

tions or establish permit standards, there are emerging signs that Section 4(d) shows promise to become the flagship ESA program of the next decade. This article explores those signs in the context of the peculiar history of efforts to conserve threatened and endangered species. It also promotes the use of the "4(d) rule" as a substantial improvement over the existing tools that currently dominate ESA implementation to achieve the goal of the Act, which is recovery of species and the ecosystems on which they depend.3

Endangered species protection grew out of the federal conservation law tradition of active agency management of public resources, intergovernmental coordination, and prohibitions designed to protect public investment and values. As ESA implementation has come to rely more on permits to restrict private economic activities that inflict environmental harms, it has come more to resemble conventional pollution control.

However, an important gap remains between the two branches of environmental law. Pollution control permits are almost uniformly designed to ensure aggregate (albeit halting) progress toward ultimate statutory goals, such as air quality that does not impair public health or water quality that supports recreation and fisheries. In contrast, the ascendant ESA permit program under Section 10(a), as implemented, fails to build toward the ultimate aim of the Act, recovery of species so that they are no longer on the brink of extinction. In this article, we advocate a shift in emphasis in ESA implementation to a new kind of permit program. This program, authorized under Section 4(d), requires agency implementation that ensures progress toward recovery.4

A permit program that promotes recovery not only brings implementation of the ESA into line with the pollution control programs that characterize the modern era of environmental law, it also directs the attention of agencies and the public toward the important conservation challenges. In the coming decades, approaches to conserving biological diversity that merely mitigate harm or abate damage will increasingly reveal themselves inadequate.5 Restoration and recovery will be the hallmarks of any suc-

4. See discussion infra at V(A), VI(A)(2).
5. This is proving to be the case in the area of wetlands conservation. A recent National Academy of Sciences panel found the federal mitigation program inadequate even to prevent net loss of wetlands in the United States. NATIONAL RESEARCH COUNCIL,
cessful biodiversity strategy.

The conservation strand of environmental law has been slow to borrow the more successful innovations of the pollution control strand. The history of the development of ESA programs illustrates this lag, but also reveals an excellent opportunity to fill a key need for more comprehensive conservation planning. Section II of this article reviews the science and circumstances that give rise to this need. It briefly covers the extinction concern in the broader context of biodiversity. Section III outlines the basic provisions of the ESA that form the foundation for the programs of implementing agencies.

In this article, we distinguish between the ESA itself (the statute) and the ESA program, which includes the implementing regulations, handbooks, interpretations and practices of the U.S. Fish and Wildlife Service ("FWS") and the National Marine Fisheries Service ("NMFS"). Like the innovations of the past decade, future progress in meeting the goal of endangered species protection is more likely to originate in imaginative agency experimentation than in congressional legislation. Section IV of the article outlines the evolution of the ESA program from the traditional conservation paradigm of interagency coordination and prohibitive policy to the current paradigm of permitting, which is closer in spirit to the pollution control strand of environmental law. Section IV shows how further adoption of the successful tools of pollution control law (especially cooperative federalism), through the use of ESA Section 4(d), would prompt greater progress and respond to the legitimate criticism of the current approach. Section IV also discusses the lesser-known aspects of the ESA that are beginning to encourage closer cooperation between the Services and the states.

Section V describes the basic mechanics of ESA Section 4(d) and illustrates its application through two case studies: Natural Community Conservation Planning for the coastal California gnatcatcher, and the still-emerging Washington state response to Pacific salmon (and bull trout) conservation in the urban areas around Puget Sound. These examples highlight the nascent po-
potential of Section 4(d) to usher in a new era of recovery through cooperative federalism.

Finally, Section VI develops in greater detail the path to constructive use of Section 4(d) to recover more effectively species on the brink of extinction. This section examines the strengths of employing Section 4(d) as a vehicle for comprehensive conservation planning. The comparison of Section 4(d) with the 10(a) permit program confirms the promise of recovery through cooperative federalism. It also highlights the programmatic limitations of the current emphasis on incidental take permits. In addition, Section VI addresses some weaknesses of the new approach. The article concludes with recommendations for building an effective 4(d) program.

So much has been written and debated over the past five years about habitat conservation planning and incidental take permits that it is easy to forget that the current focus on this aspect of the ESA program is not an endpoint, but it is just another stage in the development of a controversial but essential program. This article suggests that it is time to look beyond the Section 10(a) debates and toward the next era of biodiversity policy. The next era will certainly need to respond more potently to the challenge of the extinction crisis in a nation of fragmented ecosystems. The alliterative hallmarks of the new era of ESA implementation that we advocate are: cooperative, customized, comprehensive conservation. The cooperative transformation will enlist the land use planning and control programs of state and local governments. The customized transformation will tailor incentives and restrictions on activities to meet the specific needs of species in the area. The comprehensive transformation will apply habitat protection to an area large enough to enable flexible land use trade-offs and provide a network of reserves. The conservation transformation will recover, not simply maintain, species on the brink of extinction so that they no longer need the intensive care tools of the ESA.

II. THE EXTINCTION PROBLEM

Although states began addressing the decline in game species in states, we will focus on the Washington response because it comes closest to the model we propose for future innovation in the ESA program. Also, Seattle is the largest metropolitan area affected by the rule. See infra note 342.
the nineteenth century, the federal government did not take significant measures to prevent extinctions until the early 1900s.8 Even then, the focus of conservation law remained on hunting, trapping, and other direct means of killing animals. The first significant program for protecting the habitat on which species depend was the system of wildlife refuges, initially established via executive action under Theodore Roosevelt and then expanded by Congress.9 Land acquisition and public land management remained the principal federal tools for preventing habitat destruction and species extinctions until Congress enacted the modern version of the ESA in 1973.10

The extinction of species is but one manifestation of the larger contemporary problem of the loss of biological diversity. Biological diversity, broadly speaking, incorporates not only the components of the natural world, but the interactions among them.11 In addition to the variety of species, biological diversity also expresses itself at the ecosystem level in the mosaic of habitats and natural communities in a region. Genetic diversity refers to the variation in the gene pool for a population of organisms. Reductions in diversity at either the ecosystem level or the genetic level often cause extinctions.

Species extinction is part of the evolution of life and is ubiquitous in fossil records. But, the current era of mass extinction is special because it is largely caused by human activities and is occurring at a relatively rapid pace.12 The four major anthropogenic causes of species extinction, in order of their importance in the United States, are: 1) habitat degradation and destruction; 2) the

8. The groundbreaking federal statute is the Lacey Act of 1900, prohibiting interstate commerce in animals taken in violation of state law. Ch. 553, § 1, 31 Stat. 187.
12. NATIONAL RESEARCH COUNCIL, SCIENCE AND THE ENDANGERED SPECIES ACT 39 (1995). The geologic record provides evidence for at least five comparable mass extinctions during the past 500 million years, which some speculate were caused by meteorite collisions with the Earth. Id. at 25-26.
introduction of non-native species and the spread of diseases carried by them; 3) pollution; and 4) overexploitation through hunting and harvest.13 Because it presents the most difficult conflict with the rights of private landowners and because it contributes to the risk of extinction for 85% of imperiled species,14 habitat degradation and destruction is the greatest challenge for conserving species on the brink of extinction. In their comprehensive study of habitat conservation plans, three prominent conservation biologists succinctly stated the conservation task: "if we want to save species we must protect a sufficient quality and quantity of habitats."15

The quantity, or size, of habitats needed to restore imperiled species populations may be quite large. For instance, some birds breed exclusively in tracts of habitat many times the size of their territory.16 Salmon in the Columbia River basin travel from the sea to breed in tributaries that fan out over 260,000 square miles.17 Migratory birds and salmon illustrate how some species depend on different types of habitat in different places at different times.

Furthermore, the minimum area of habitat needed for healthy levels of populations depends, in part, on the geometry of the landscape and its quality.18 For instance, blocks of habitat close together, contiguous, and interconnected are better than blocks far apart, fragmented, and isolated.19 For the purposes of understanding the discussion in this article, the important principle to remember about the habitat needs of endangered species is that a single, protected, park-like reserve generally does not succeed in

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14. Wilcove, Quantifying Threats, supra note 13, at 607-608 (surveying the threats to all species covered by the ESA as well as many species identified by the Nature Conservancy as imperiled).


18. The science of habitat needs for endangered species is discussed in NOSs ET. AL., supra note 15, at 99-110, and NATIONAL RESEARCH COUNCIL, supra note 12, at 94-110.

recovery. Reserves tend to be too small and lack the necessary linkages to other habitats. Instead, habitat often must be actively managed and connected across landscapes in which urban development, logging, farming, and other activities occur.  

III. THE ESA FRAMEWORK

In response to the extinction problem, Congress enacted the ESA in 1973 "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." 21 The Act defines "conserve" to mean "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 [by the Act] . . . are no longer necessary." 22 So, the object of the statute is to list certain species in danger of extinction and then apply special conservation measures to promote recovery of habitats and populations until extinction is not likely in the foreseeable future.

This section sketches the basic framework of the ESA. It begins in Part A with a discussion of ESA Section 4, which addresses special Service responsibilities for listing and recovering species. Until a species is proposed to be listed as threatened or endangered, the Act does not safeguard it, no matter how moribund its prospects. The rest of this section describes the statutory restrictions designed to protect listed species. Although some listed species occur only outside of the United States, the focus of this article tracks the focus of the ESA program dealing with habitat degradation, which is conservation within the United States. 23 Part B discusses ESA Section 7, which imposes three duties on federal agencies. Part C discusses ESA Section 9, which contains more broadly applicable prohibitions that raise liability concerns for state and


23. This article, because it is concerned with regulation of habitat-modifying activities in the United States, does not address those parts of the ESA that deal with species conservation abroad, international agreements, or the import and export of biological material.
local governments as well as private citizens. Finally, Part D describes Section 10, which provides for permits to engage in otherwise prohibited activities.

A. The Services' Section 4 Duties: Species, Critical Habitat, and Recovery Plans

The listing of a species as threatened or endangered is the most important threshold decision in determining whether the protections of the Act will apply. The ESA divides responsibility for listing between the Secretaries of the Interior and Commerce, who have delegated their power to the FWS and the NMFS, respectively. The NMFS is responsible for most marine species, including anadromous fish, such as salmon, that migrate between fresh and marine waters. The FWS is responsible for all other species. These two listing services are collectively referred to as "the Services."25

Although the scope of the Act is limited to the animal and plant kingdoms, "species" is defined broadly to include subspecies and "any distinct population segment" of vertebrates that interbreeds.26 Thus, particular runs of salmon, such as the Upper Willamette spring-run chinook salmon in Oregon, though consisting of species that are common elsewhere, are eligible for listing because they constitute distinct population segments that are reproductively isolated from other segments of the species.27 The isolation may be geographic, or, in the case of salmon runs, it may be temporal — related to the time when the segment arrives at its


breeding grounds.

The Act requires the Services to list species pursuant to notice and comment informal rulemaking.\(^{28}\) Species may be listed upon the initiative of the Service or by prompting of the Service through a citizen petition.\(^{29}\) Species are proposed, and then listed in final form, as either threatened or endangered. The distinction between the two categories of listed species is imprecise. The statute defines endangered species to mean “any species which is in danger of extinction throughout all or a significant portion of its range . . ."\(^{30}\) In contrast, a threatened species is “any species which is likely to become an endangered species within the foreseeable future . . ."\(^{31}\) So, endangered species have some unquantified greater risk of extinction in the near term. At the time of listing, endangered species usually have “significantly fewer" individuals and populations than threatened species.\(^{32}\) Most of the ESA programs, with the significant exception of the Section 9 prohibitions, treat both categories of listed species identically. As of October 31, 2001, the Services had listed 976 endangered and 273 threatened species in the United States.\(^{33}\)

Critical habitat is defined by the ESA as both the 1) range occupied by the species at the time of listing where features occur that are essential to recovery and which may require special management consideration or protection, and 2) areas outside the range occupied by the species at the time of listing which are essential for the conservation of the species.\(^{34}\) When a Service lists a species, it also must designate critical habitat “to the maximum extent prudent and determinable.”\(^{35}\) Despite this statutory mandate, only 148 listed species had designated critical habitat as of April 13, 2001.\(^{36}\) Unlike the listing decision, which is based solely on the

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\(^{30}\) Id. § 1532(6).

\(^{31}\) Id. § 1532(20).


\(^{35}\) 16 U.S.C. § 1533(a)(3) (1994). Designation of critical habitat is not prudent when 1) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase this threat, or 2) such designation would not be beneficial to the species. 50 C.F.R. § 424.12(a)(1) (1999).

\(^{36}\) U.S. Fish and Wildlife Service, Listed Species with Critical Habitat, at
best scientific information, critical habitat also takes into account economic and other relevant impacts. Although critical habitat is operationally relevant only under the Section 7 federal duties, it is the subject of much litigation and controversy. The Clinton and George W. Bush Administrations have argued repeatedly that designation of critical habitat is a needless and expensive diversion of agency resources with little to no practical benefit to the species. Because this controversy largely concerns obligations peripheral to the subject of this article, we will not dwell on critical habitat.

After listing, the Services also are responsible for developing recovery plans. The plans are prepared by teams which often include representatives from other agencies and institutions with information on or interests in the species. These teams are not subject to the Federal Advisory Committee Act but provide public notice and review of draft plans. Recovery plans, which may cover more than one species linked by common habitat or threat, contain three elements. First, each plan contains a description of “site-specific management actions” necessary for recovery. 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. Third, the plan includes estimates of the time and money required to meet recov-


38. Id. § 1533(b)(2).
40. 16 U.S.C. § 1533(f) (1994). Recovery plans are not required where they would not promote conservation of the species. Id.
41. Id. §§ 1533(f)(2), (4).
42. Id. § 1533(f)(1)(B)(i).
43. Id. § 1533(f)(1)(B)(ii).
ery and intermediate goals that lead toward recovery.\textsuperscript{44} The financial estimates are daunting. A 1990 Interior Department report estimated the total cost for recovery of listed species to be \$4.6\ billion.\textsuperscript{45} The number of listed species has doubled since that time.\textsuperscript{46} Because recovery of listed species (and the habitat on which they depend) is the goal of the ESA, it is somewhat surprising that recovery planning has maintained such a low profile among the Act's programs. Nonetheless, 975 species had recovery plans as of October 31, 2001.\textsuperscript{47} Professor Cheever argues that recovery plans have played an insignificant role in listed species conservation at least in part because the Services do not regard the plans as binding, and courts have refused to compel implementation of plans.\textsuperscript{48} However, courts 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 listing was based.\textsuperscript{49} Recovery plans will become more important as the Services shift their programmatic emphasis from survival maintenance to long-term conservation.

\textbf{B. Duties of Federal Agencies: Section 7}

The ESA imposes special procedural and substantive duties on federal agencies. These duties, contained in Section 7, can be summarized as conserve, confer and consult. The duty to consult

\begin{thebibliography}{99}
\bibitem{44} Id. \S 1533(f)(1)(B)(iii).
\bibitem{46} \textit{Compare id.} with U.S. Fish and Wildlife Service, \textit{Number of U.S. Species Listings Per Calendar Year}, at http://endangered.fws.gov/stats/list~cy.pdf (last visited Nov. 11, 2001).
\bibitem{47} U.S. Fish and Wildlife Service, \textit{supra} note 33.
\end{thebibliography}
dominated the ESA program for its first two decades, and characterized its principal focus on interagency coordination.

The duty to conserve is an affirmative but nonspecific duty for agencies to use their authorities to carry out programs to recover listed species.⁵⁰ Although courts consistently hold that the duty to conserve requires some action, or some reason why the agency has not acted, they seldom set out precisely what it requires or rely on it as the sole basis for overturning an agency's decision.⁵¹ The duty is not triggered by any particular action and there are no procedures provided by the Act for its fulfillment. For all of these reasons, the duty to conserve has not played a prominent role in the implementation of the ESA. Although some recent cases show signs of breathing life into the duty to conserve,² it currently remains overshadowed by the overlapping, but separate and more specific, duty of the Services to prepare recovery plans.

The duty to confer plays an even less important role in the ESA program. This duty, directed toward the protection of species proposed to be listed, imposes no substantive standards; it is purely procedural. The duty requires agencies to confer informally with the relevant Service on any action that is "likely to jeopardize the continued existence" of any proposed listed species, or result in the "destruction or adverse modification" of proposed critical habitat.⁵³ The result of the informal discussion, however, is advisory recommendations that are not binding.⁵⁴ Agencies have no obligation to prevent jeopardy to proposed species, or to withhold irretrievable commitments of resources to projects during the conferring process.⁵⁵ Nonetheless, agencies may abide by the advisory recommendations in order to avoid problems if and when the proposed listing becomes final.⁵⁶

⁵⁴. 50 C.F.R. § 402.10 (1999).
⁵⁶. Agencies may also confer with the Service using more formal procedures akin to the consultation duty. In that case, so long as there is no new significant information or change
The ESA Section 7(a)(2) duty to consult is so important because, unlike the other two federal duties, it combines procedural and substantive requirements. The procedural component is the consultation itself, which requires the agency considering an action and the Service to engage in a comprehensive, interdisciplinary analysis of the effects of the proposed action on affected listed species and critical habitat. The substantive component requires all agencies to "insure that any action authorized, funded, or carried out... is not likely to jeopardize the continued existence of any... [listed] species or result in the destruction or adverse modification" of critical habitat. These requirements work together to establish a strong foundation for conservation. In an opinion that has come to typify the judicial response to the consultation mandate, the Ninth Circuit stated:

[T]he strict substantive provisions of the ESA justify more stringent enforcement of its procedural requirements, because the procedural requirements are designed to ensure compliance with the substantive provisions. The ESA's procedural requirements call for a systematic determination of the effects of a federal project on endangered species. If a project is allowed to proceed without substantial compliance with those procedural requirements, there can be no assurance that a violation of the ESA's substantive provisions will not result. The latter, of course, is impermissible.

The Services have promulgated joint regulations implementing the consultation provision. The regulations build on the National Environmental Policy Act ("NEPA") experience of interagency coordination as a means to bring broad, interdisciplinary environmental considerations to bear on an agency interested in advancing its institutional priorities. Like NEPA, the consultation duty is triggered when an agency prepares to make any discretionary act—including promulgating regulations; granting licenses, permits, or grants; and authorizing programs or projects that modify the land, air, or water. Although an exemption to the proposed action, the Service will issue an advisory biological opinion that will be adopted as a biological opinion under the consultation duty when the proposed listing becomes final. 50 C.F.R. § 402.10(d) (1999).

58. Thomas v. Peterson, 753 F.2d 754, 764 (9th Cir. 1985) (citing TVA v. Hill, 437 U.S. 153 (1978)) (rejecting the Forest Service's contention that the procedural requirements of consultation should be enforced flexibly and loosely, and requiring that the Forest Service prepare a biological assessment).
60. 50 C.F.R. § 402.02 (1999).
process in the statute allows certain actions to proceed despite the jeopardy they pose to a listed species, it is rarely invoked.\(^6^1\)

The procedural component of consultation begins when an agency determines that an action may affect a listed species or critical habitat.\(^6^2\) If the action is a "major construction activity," or one having similar impacts (such as a permit for a major construction activity), then the agency must prepare a biological assessment to determine whether formal consultation is necessary.\(^6^3\) A biological assessment determines whether any listed or proposed species, or critical habitat, are likely to be adversely affected by the action.\(^6^4\) If the agency finds that the action is not likely to adversely affect species or habitat, and the Service concurs, then the process ends with no further requirements.\(^6^5\)

If an agency’s biological assessment finds likely adverse affects, or if the agency did not prepare a biological assessment and the action may affect a listed species or critical habitat, then the agency must initiate formal consultation with the relevant Service. The agency provides the Service with information about the proposed action and other descriptions and analyses related to impacts on listed species and critical habitat.\(^6^6\) The Service then responds with a biological opinion stating whether the action is likely to meet the substantive component of the consultation duty: to avoid jeopardy.\(^6^7\) If the Service believes that the action would cause jeopardy, then it issues a "jeopardy opinion" containing reasonable and prudent alternatives (if any) that would not violate the consultation duty.\(^6^8\) If the Service finds that the action would not violate the substantive jeopardy standard, then it issues a "no jeopardy" biological opinion. The Service will issue an incidental take statement to shield the agency from liability under Section 9 of the ESA for "no jeopardy" actions, and alternatives, that none-

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\(^6^1\) 16 U.S.C. § 1536(e)-(l) (1994); 50 C.F.R. pt. 450 (1999). The committee authorized to grant exemptions under the conditions specified by the Act has met only three times and granted exemptions only twice (for a dam in 1979 and for a set of timber sales in 1992). FISCHMAN & SQUILLACE, supra note 51, at 216-217.


\(^6^5\) 50 C.F.R. § 402.12(k) (1999).

\(^6^6\) Id. § 402.14(c).


\(^6^8\) Id. § 1536(b)(3).
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Nevertheless involve takes of individuals of the listed species.\(^6\) During the time of the consultation process, the agency may not make any "irreversible or irretrievable commitment of resources" that would limit the ability to create reasonable and prudent alternatives to the proposed action.\(^7\)

In a controversial set of definitions, the Services have defined the substantive component of the jeopardy duty in such a way as to allow agencies to reduce the long-term recovery prospects of species.\(^7\) According to the Services, "jeopardize the continued existence of" means "to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild," either directly or indirectly.\(^7\) This definition essentially ties jeopardy to the reduction of the likelihood of survival only, since recovery encompasses survival. The National Research Council reported in 1995 that "survival and recovery are not equivalent standards, although they are related. Clearly, if a species does not survive, it cannot recover. It is less obvious, but still true, that any action that jeopardizes recovery also decreases the probability of long-term survival."\(^7\) Nonetheless, the Services do establish a lower population threshold for survival than for recovery in finding that the impairment of recovery alone, without jeopardizing survival, does not trigger jeopardy.\(^7\) The regulations similarly limit the adverse modification component of the statutory substantive duty to alterations that appreciably diminish the value of critical habitat for both survival and recovery.\(^7\) So, in contrast to the conserva-

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\(^6\) Id. §§ 1536(b)(4), (o)(2). The incidental take statement specifies: 1) the impact of the taking on the species (e.g. the amount and extent), 2) reasonable and prudent measures to minimize the impact, and 3) terms and conditions that must be complied with to implement the measures. 16 U.S.C. § 1536(b)(4) (1994); 50 C.F.R. § 402.14(i) (1999). Liability under ESA § 9 is discussed infra notes 83-108 and accompanying text.

\(^7\) 16 U.S.C. § 1536(d) (1994).

\(^71\) Professor Houck's superb analysis of these regulations is the standard reference for consultation. Oliver Houck, The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce, 64 U. COLO. L. REV. 277, 315-329 (1993). See infra notes 222-243 and accompanying text.

\(^72\) 50 C.F.R. § 402.02 (1999) (emphasis added).

\(^73\) NATIONAL RESEARCH COUNCIL, supra note 12, at 91.

\(^74\) Michael C. Blumm and Greg D. Corbin provide an example of the lower survival threshold for jeopardy (as compared with recovery) in their discussion of a NMFS biological opinion concerning hydropower operations on the Columbia River that adversely affect listed salmon. See Blumm & Corbin, supra note 17, at 593-94. See generally supra notes 507-511 and accompanying text.

\(^75\) 50 C.F.R. § 402.02 (1999). However, the Fifth Circuit recently invalidated the regulatory definition of destruction or adverse modification of critical habitat, which requires an
tion duty, which promotes recovery, the duty to avoid jeopardy, as implemented, merely prevents actions that reduce the likelihood of survival. Many commentators criticize this regulatory opinion as too lax.76

The relatively permissive definition of the substantive component of the consultation duty is one reason why so few federal actions evaluated in the consultation process result in a jeopardy opinion. From 1987 through 1995, of the approximately 186,000 federal actions reviewed by agencies for impacts on listed species, only 2.7% required formal consultation. Of these 5,046 formal consultations, only 600 received "jeopardy" opinions. Of these jeopardy opinions, the FWS identified reasonable and prudent alternatives for all but 100 projects. Of these 100 projects, all but 13 were related to timber sales in spotted owl habitat. Reasonable and prudent alternatives included changes in the timing of construction, modifications to the project's design, adjustments in site location, and emission restrictions.77

The consultation duty has dominated the commentary and generated the greatest amount of litigation under the ESA. Consultation has proven to be an important lever for environmental groups to force agencies to rethink projects and permits. The Supreme Court set the tone of ESA implementation generally, and fulfillment of the consultation duty in particular, in its 1978 decision, *Tennessee Valley Authority v. Hill.*78 This dispute, in which environmentalists sought to block the completion of the Tellico Dam, was the first of only two ESA interpretation cases the Supreme Court would decide.79 The Court famously held that the appreciable reduction in the likelihood of both the survival and recovery of the listed species. *Sierra Club v. U.S. Fish and Wildlife Service,* 245 F.3d 434 (5th Cir. 2001) (interpreting the ESA to require a lower threshold for a finding of destruction or adverse modification of critical habitat).


77. FISCHMAN & SQUILLACE, *supra* note 51, at 217. See also Houck, supra note 71, at 318 (finding 18 jeopardy-without-alternatives opinions out of 73,500 informal and formal consultations).


79. Although the Supreme Court has decided standing cases in suits alleging violation of the ESA, those decisions did not squarely interpret the Act. See Bennett v. Spear, 520 U.S. 154 (1997); Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992). Both decisions, however, did contain some discussion of the purpose and operation of the biological opinion. That
purposes of the Act "was to halt and reverse the trend toward species extinction, whatever the cost," and that the language of the duty to consult "admits of no exception." So, even though the Tellico Dam was nearly complete, it would have to be abandoned because of the jeopardy it would cause to the continued existence of the snail darter. This strict interpretation of the consultation duty, as part of the policy of "institutionalized caution," propelled Section 7 to the forefront of ESA programs and made it a flagship environmental responsibility of the federal government.

C. General Prohibitions: Section 9

Like the federal agency duty to conserve, the Section 9 prohibitions themselves are purely substantive. However, unlike the duty to conserve, they are negative prohibitions, not affirmative obligations. Also, the general prohibitions apply not only to federal agencies, but also to all "persons," defined broadly to include individuals, corporations, and state or federal agencies. Many of the general prohibitions relate to commerce in listed species and their parts, including delivery, shipping, transportation, and import/export. This part will focus on the prohibitions that relate more directly to situations where prohibited activities are conducted for purposes other than harvesting listed species or their products for captivity, sale, trade, or direct use. This part, like this article, is more concerned with liability for activities that incidentally impact listed species in the pursuit of some other objective, such as logging, residential development, and recreation.

The ESA itself sets out specific prohibitions only for endangered species, not threatened species. Unlike the federal duties in Section 7, which do not distinguish between threatened and endangered species, Section 9 (through Section 4(d)) gives the Services discretion to promulgate regulations setting out prohibitions that apply to threatened species. The ESA gives the Services power

\[\text{discussion, however, has not been influential in the development of ESA programs.} \]


\[\text{81. Despite the Court's decision, the Tennessee Valley Authority ultimately completed the dam pursuant to appropriations legislation excepting the project from the ESA.} \]

\[\text{82. TVA, 437 U.S. at 194.} \]

\[\text{83. 16 U.S.C. § 1532(13) (1994).} \]

\[\text{84. Id. §§ 1538(a)(1)(G), (2)(E).} \]
to issue such "4(d) rules" as they deem "necessary and advisable to provide for the conservation" of threatened species. This discretion to tailor prohibitions to the specific circumstances of a particular threatened species provides the flexibility to design a framework for planning and regulation that is no more stringent than required by a particular species' recovery needs.

The FWS has promulgated blanket rules extending all of the Section 9 prohibitions for endangered species to threatened species unless the agency issues a specific 4(d) rule applicable to a particular threatened species. The NMFS has not employed this blanket approach and only prohibits whatever it specifically determines for each threatened species under its jurisdiction. Nonetheless, the specific rules promulgated by NMFS for individual threatened species do include the Section 9 prohibitions for endangered species, with some enumerated exceptions. We will return to the 4(d) rule after reviewing the statutory prohibitions for endangered species to provide a basis for comparison.

In contrast to the federal duties, which do not distinguish among the taxa of listed species, the general statutory prohibitions for endangered species apply more protectively to animals than to plants. This disparity grows out of the common law traditions of real property, wherein plants, such as trees, are considered part of the fee simple estate. In contrast, a landowner over whose property wild animals may roam does not own the animals.

So, apart from the commercial prohibitions on import, export, delivery, transportation, and the like, it is illegal to remove, cut, dig up, or damage or destroy an endangered plant only in knowing violation of any state law or regulation, or in the course of any violation of state criminal trespass law. Landowners, therefore, face no direct ESA liability for destroying endangered plants, only derivative liability dependent on state proscriptions. Most states, though, do not restrict the taking of endangered plants. However, a handful do. In that group of seven to ten states, federal law may

86. 50 C.F.R. §§ 17.31 (for animals), 17.71 (for plants) (1999).
88. These rules are promulgated at 50 C.F.R. § 223 (1999).
89. BEAN & ROWLAND, supra note 21, at 225 n.158.
be used to enforce the substantive state restrictions.\textsuperscript{91}

On federal lands, however, it is unlawful to "remove and reduce to possession" or "maliciously damage or destroy" endangered plants.\textsuperscript{92} Incidental destruction, though, through grazing, logging, or some other activity with an aim unrelated to the trampled endangered plant, is not prohibited under the ESA. For all of these reasons, endangered plant prohibitions seldom trigger controversy or enforcement actions.

The statutory prohibitions protecting endangered animals, on the other hand, are much broader. They are the basis for much of the demand for permits and exceptions fueling the recent ESA programs. The key provision with broad application prohibits the "take" of endangered animals.\textsuperscript{93} The Act defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."\textsuperscript{94} Of these terms defining take, "harm" and "harass" are the broadest, encompassing incidental effects of activities whose principal goal, such as logging or construction, is sanctioned by law. The FWS has defined these terms and, though the definition of harass is in certain respects more broad,\textsuperscript{95} "harm" has become the pressure point limiting habitat disrupting activities. Until recently, the NMFS had not promulgated regulations defining the terms of take, and proceeded through case-by-case determinations. In 1999, however, the NMFS adopted a definition of harm modeled after the one promulgated by the FWS.\textsuperscript{96}

\textsuperscript{91} Jeffrey J. Rachlinski, Protecting Endangered Species Without Regulating Private Landowners: The Case of Endangered Plants, 8 CORNELL J.L. & PUB. POL’Y 1, 10-16 (1998). Seven states, Guam, and the Virgin Islands prohibit even landowners from taking protected species. Many more states prohibit the taking of protected species without the permission of the landowner. \textit{Id}.


\textsuperscript{95} Under 50 C.F.R. § 17.3, harassment, as compared to harm, includes omissions as well as acts, and requires only the likelihood of injury, not actual injury. See BEAN & ROWLAND, \textit{supra} note 21, at 224. This "sleeper" regulation may soon eclipse the harm definition as the basis for potential liability and incentives to cooperate in ESA programs, such as permits and comprehensive conservation plans. See William H. Rodgers, Jr., \textit{Where Environmental Law and Biology Meet: Of Panda’s Thumbs, Statutory Sleepers, and Effective Law}, 65 U. COLO. L. REV. 25 (1993). Steven G. Davison, \textit{Alteration of Wildlife Habitat As a Prohibited Taking Under the Endangered Species Act}, 10 J. LAND USE & ENVTL. L. 155 (1995) provides a history of the harm and harass definitions.

\textsuperscript{96} Endangered & Threatened Wildlife and Plants, Definition of "Harm", 64 Fed. Reg.
The FWS defines harm as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."97 A 1995 Supreme Court decision, Babbitt v. Sweet Home Chapter of Communities for a Great Oregon,98 upheld this definition against a facial challenge.99 The precise meaning of the regulation, as applied to particular fact situations, was the subject of debate among the justices in the Sweet Home decision and continues to be debated by lower courts.100 Nonetheless, it seems clear that harm may "occur indirectly, through a foreseeable chain of causation."101

For instance, logging in suitable nesting habitat for the threatened marbled murrelet, in an area where many birds were detected displaying nesting behavior, constitutes prohibited harm of the bird.102 The Ninth Circuit found that impairment of breeding by logging habitat does actually injure birds.103 The court also found that demonstrating past or present harm is not necessary for injunctive relief under the Act; imminent threat of future harm can be a basis for an order prohibiting a harm-causing activity.104

On the other hand, the construction of a lounge, restaurant and hotel development would not harm the endangered Perdido Key

101. BEAN & ROWLAND, supra note 21, at 221.
102. Marbled Murrelet v. Babbitt, 83 F.3d 1060 (9th Cir. 1996).
103. Id. at 1067.
104. Id. at 1064.
Beach mouse. A district court found too attenuated the causal links between the project and the factors which might harm the mouse. The court determined that the development itself was not on mouse habitat. Allegations that the development would introduce a significant number of cats, which prey on the mice, required "an incredible leap of logic." In addition, the court held that the defendant should not be responsible for the maintenance of an adjacent public park in such a way as to prevent trampling the dunes essential to the mouse's survival. Even if the development would increase use of the public beach, the trampling could be minimized by the state through boardwalks, signs, and use restrictions.

There is substantial support for prominent ESA commentator Michael Bean's assertion that taking prohibition decisions reflect "strikingly different reasoning" and "add up to considerable confusion about the circumstances under which habitat modification" runs afoul of the law. However, the burgeoning demand for incidental take permits, described in the following part, illustrates that there are many situations where habitat modification has a high enough probability of causing prohibited harm to prompt a landowner to take mitigating action. This is particularly remarkable given the rarity of monitoring and enforcement of the taking prohibition.

D. Incidental Take Permits

Although the prohibitions in Section 9 and Section 4(d) apply to everyone generally, there are important exceptions. First, as already mentioned, activities covered by a "no jeopardy" biological opinion are shielded from Section 9 liability to the extent specified in the incidental take statement. Second, certain subsistence activities by Alaska natives and certain activities for which the application of the general prohibitions would cause "undue eco-

106. Id. at 431.
107. Id.
108. Bean, supra note 100, at 10703. Among the cases Bean cites are ones where courts required more than statistical evidence to link a habitat modification to a harm. See also 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 (1999) (reviewing litigation applying the harm prohibition).
nomic hardship” enjoy narrow exemptions. Third, the Services issue permits to allow takes incidental to legitimate scientific and conservation projects. Finally, though the statute does not exempt these takes, it does provide a defense for liability stemming from actions taken to protect a human from bodily harm.

The most important exception to the general prohibitions, however, is the incidental take permit of Section 10(a) that allows take under prescribed conditions in exchange for a habitat conservation plan (“HCP”). This permit program has been the most important development in ESA implementation over the past decade as attention has shifted from federal programs to the private activities that impair species recovery. The next part of this article discusses in greater detail this shift in emphasis. This art sketches out the basic framework for incidental take permits and HCPs.

The HCP is the part of the permit that has received the greatest attention because, in part, its name promises a more comprehensive approach to recovery than the federal project modifications spurred by Section 7. Unfortunately, the incidental take permit program has not been implemented to realize fully this potential. To receive an incidental take permit, an applicant must prepare an HCP that specifies:

1. the impact of the taking;
2. steps to minimize and mitigate the impact;
3. the funding to implement the steps;
4. what alternative actions to the taking the applicant considered and the reasons why they were not taken; and
5. other measures that the Services may require as being necessary or appropriate for the purposes of the plan.

After a public comment period, the Service must decide whether to issue a permit. Although the Act lists a number of requirements that, if fulfilled, mandate the issuance of a permit, the Services retain a fair amount of discretion to condition issuance upon the applicant’s acceptance of terms and conditions to carry out the purposes of the HCP. To issue a permit, the Service must first find that:

111. Id. § 1539(b).
112. Id. § 1539(a)(1).
113. Id. § 1540(a)(3).
114. Id. § 1539(a)(2).
115. Id. § 1539(a)(2)(A).
116. Id. § 1539(a)(2)(B)(v).
1. the taking will be incidental;
2. the applicant will minimize and mitigate impacts to the maximum extent practicable;
3. the applicant will ensure adequate funding for the plan;
4. the taking will not appreciably reduce the likelihood of the survival and recovery of the species; and
5. the other measures that the Services deemed appropriate for the HCP will be met.\textsuperscript{117}

Although a permitting program, Section 10(a) also seeks to foster "creative partnerships between the private sector and all levels of government in the interests of protected species and habitat conservation."\textsuperscript{118} Congress created the permit program in 1982 at the request of a coalition of developers, municipal governments, and a local environmental organization. These groups had reached an agreement to allow some harm to the endangered mission blue butterfly from a new housing development at San Bruno Mountain, California, in exchange for a habitat preservation and enhancement agreement.\textsuperscript{119} Permits covering large-scale developments, such as the San Bruno agreement, continue to include HCPs hammered out by multiple parties and involving the public. On the other hand, many permits cover small areas, an acre or less. These smaller permits, often for the construction or improvement of a single house, are issued with less broad public participation.\textsuperscript{120} Even some large, single-landowner HCPs result from entirely private negotiations between the owner and the Service.\textsuperscript{121} Although the Act requires an opportunity for public comment on a permit application,\textsuperscript{122} it is difficult to inject new information, interests or ideas once the draft HCP has been negoti--

\textsuperscript{117} Id. § 1539(a)(2)(B).
\textsuperscript{118} U.S. FISH AND WILDLIFE SERVICE AND U.S. NATIONAL MARINE FISHERIES SERVICE, HABITAT CONSERVATION PLANNING AND INCIDENTAL TAKE PERMIT PROCESSING HANDBOOK, Foreward (1996) [hereinafter HABITAT CONSERVATION HANDBOOK].
\textsuperscript{120} DEFENDERS OF WILDLIFE, FRAYED SAFETY NET: CONSERVATION PLANNING UNDER THE ENDANGERED SPECIES ACT 44 (1998) (citing examples).
\textsuperscript{121} Id. at 43-44 (citing, as examples, the Weyerhaeuser Willamette HCP for 400,000 acres and the Plum Creek Timber Company HCP for 170,000 acres for timber management).
The Act provides the Services broad discretion to create requirements for HCPs that may be "appropriate," but the Services have limited the standard for approving HCPs to the Section 7 "no jeopardy" definition. Because the Services must fulfill their Section 7(a)(2) duty to consult before issuing a permit, the Services' interpretation of the Section 10 permit standard adds little to recover species. The statutory standard for approving permits mirrors the regulatory definition of jeopardy with the one exception that Section 10 does not use the word "both" to modify "the survival and recovery" that the taking must not appreciably reduce. The Services interpret this standard in their handbook on habitat conservation planning:

Issuer of a Section 10 permit must not "appreciably reduce" the likelihood of the survival and recovery of the species in the wild. Note that this does not explicitly require an HCP to recover listed species, or contribute to their recovery objectives outlined in a recovery plan. This reflects the fact that HCPs were designed by Congress to authorize incidental take, not to be mandatory recovery tools.

Although the Handbook encourages applicants to develop HCPs that contribute to recovery, it is not a requirement. Courts have accepted the Services' interpretation that the "appreciably reduce the likelihood of survival and recovery" standard, like the jeopardy standard, requires only that survival not be significantly impaired. A number of commentators have identified this survival standard as an important weakness of the ESA.
permitting program. We explore this issue in greater detail in Section VI(A)(2), infra.

The other statutory standard that has generated considerable controversy is the requirement that the permit applicant "minimize and mitigate" the impact of the incidental take "to the maximum extent practicable." In the first significant judicial remand of an incidental take permit, an Alabama district court invalidated two HCPs for high density housing complexes in the habitat of the endangered Alabama beach mouse. The HCPs required the developers to commit a specific amount of money for off-site mitigation to acquire and protect habitat for the mouse. This kind of off-site compensation, often collected through impact fees, is typical of HCPs dealing with residential development. The court, however, found that the Service "failed to support the level or amount of off-site mitigation funding with a clearly articulated analysis demonstrating whether the amount or level of funding is rationally based on relevant facts." In this case, the facts were particularly bad for the Service because the biological opinion on the permit expressed concern over the level of mitigation and because prior HCPs dealing with the Alabama beach mouse incorporated mitigation at levels inconsistent with the challenged permits.

More recently, in the only other judicial opinion to overturn an incidental take permit, a California district court invalidated an HCP deal to allow development in the Natomas Basin, adjacent to Sacramento, while retaining habitat for a listed giant garter snake. Citing the Alabama beach mouse case, the court found that the HCP failed to comply with ESA Section 10(a)(2)(A) criteria for mitigation and adequate funding. In addition, the court

134. Id. at 1281.
135. Id. at 1280-1282. In contrast, Friends of Endangered Species v. Jantzen, 760 F.2d 976 (9th Cir. 1985) (upholding the San Bruno Mountain HCP), found a similar scheme of minimization and mitigation to be adequate where it was the result of long, inclusive negotiations and was unsupported by field studies of the endangered butterfly.
found the Service’s “no jeopardy” determination to be arbitrary and capricious because it assumed broader participation in the plan than the actual, current commitments of the involved jurisdictions. The court insisted that where mitigation for development in one jurisdiction depends on habitat conservation in another jurisdiction, some form of regional planning is required. The overarching flaw of the Natomas Basin permit, that it relied on wishful assumptions of future participation and orderly development, is common in HCPs. The Natomas Basin and the beach mouse cases limit the latitude afforded the parties in the permit negotiation, and help endangered species advocates, who are often unable to participate in the permit negotiations and must rely on judicially enforceable standards to advance their interests.

Even more controversial has been the initiatives of the Clinton Administration to promote more HCPs and incidental take permits. The best known, most important, and typical of these initiatives is the “no surprises” policy. This policy provides incidental take permit holders with long-term security. The “no surprises” assurance means that no changed circumstance or new information about a species covered by the HCP will create any additional obligation for the permittee through the life of the permit, which may run up to a century. Therefore, a permittee will not be liable for additional land or financial compensation beyond the level of mitigation that was negotiated in the HCP. The public and the Services bear the risk of unforeseen circumstances. Defenders of the policy argue that certainty is among the most important characteristics of a permit that induces participation in the HCP program. Opponents counter that, in situations where flexible adaptive management is more appropriate, the policy freezes into place untested and largely unmonitored assumptions about biology. We explore this controversy in greater detail in Section VI(A)(4), infra.

140. See, e.g., John Kostyack, The Need for HCP Reform: Five Points of Consensus, 16 ENDANGERED SPECIES UPDATE No. 3, at 47, 50-51 (1999); Kostyack, supra note 123, at 19; Parenteau, supra note 131, at 293-301; Sheldon, supra note 131, at 319-320.
IV. THE EVOLUTION OF THE ESA PROGRAM: CONVERGENCE WITH POLLUTION CONTROL LAW AND THE ROLE OF COOPERATIVE FEDERALISM

Describing the ESA itself only tells part of the story of federal endangered species protection law. The programs the Services adopt to implement the Act and the relative priorities placed on various authorities in the Act determine how well words on paper translate into real conservation. This section describes how the most prominent programs under the ESA have evolved. Part of that story is a movement from the traditional tools of resource management to the approaches of pollution control. Cooperative federalism, a prominent feature of pollution control law, is an emerging important feature of the ESA program.

A. Trends in Implementation: Toward the Pollution Control Paradigm

The first era in the development of the ESA program focused on prohibitions and interagency consultation. Best symbolized by the first of the two U.S. Supreme Court decisions interpreting the ESA, Tennessee Valley Authority v. Hill,141 this era concerned itself with the construction of the ESA Section 7 duties of federal agencies. Echoing NEPA impact analysis in its concern with evaluating the effects of proposed federal actions on listed species, this initial period culminated in the “train wreck” of federal timber sales in the Pacific Northwest habitat of the threatened northern spotted owl. Of course, the Services principally charged with implementing and enforcing the Act also spent considerable time and resources building the technical and regulatory framework to support the basic tasks of listing species and planning for species recovery. But, consulting with “action” agencies on the likelihood of jeopardy emerged as the quintessential manifestation of the ESA program.

Unlike its companion in environmental analysis, NEPA, the ESA operated most powerfully through the substantive duty of federal agencies to avoid jeopardizing the continued existence of listed species. In his landmark study of the earliest years of the ESA, Professor Steven Yaffee could concisely sum up the gist of

the statutory program as "prohibitive policy." Yaffee's term neatly captures the thrust of the TVA v. Hill opinion, which found the proscription against jeopardy to "admit to no exception."

This focus on federal compliance limited the attainment of species recovery because many of the threats to the continued existence of species were neither authorized, funded, nor carried out by federal agencies. Though the federal compliance focus reached private activities that required federal licenses or some other kind of discretionary agency approval, most habitat degradation continued to occur on private lands outside the reach of the Section 7 and jeopardy standards. Also, because land use regulation is primarily a function of state and state-enabled local government, most land development rules and incentives were outside the reach of the flagship ESA program. In 1994, the General Accounting Office highlighted the importance of privately owned habitat when it reported that over 90 percent of listed species had some or all of their habitat outside of federal lands.

Moreover, prohibitive policy is awfully strong medicine. Stringent adherence to the policy risked political backlash in Congress. Certainly, one of the reasons for the shift away from prohibitive policy in 1993 was the inauguration of an administration that sought to keep Congress from weakening the Act. Also, where a statute provides little space for agencies to back away from draconian regulation, the targets of regulation have "powerful incentives to fight regulation wherever they can." The embattled agency, then, has a similarly great incentive to avoid implementation or enforcement that will unleash another hostile response.

142. YAFFEE, supra note 10.
143. TVA, 437 U.S. at 173. Another frequently used characterization of TVA's stringent interpretation of the ESA is that "[t]he language, history, and structure of the [Act] indicates beyond doubt that Congress intended endangered species to be afforded the highest of priorities." See, e.g., Loggerhead Turtle v. Council of Volusia County, 148 F.3d 1231, 1246 (11th Cir. 1998) remanded to 92 F. Supp.2d 1296 (M.D. Fla. 2000) (citing TVA, 437 U.S. at 174).
144. U.S. GENERAL ACCOUNTING OFFICE, ENDANGERED SPECIES ACT: INFORMATION ON SPECIES PROTECTION ON NONFEDERAL LANDS (GAO/ RCED-95-16) 1, 4-5 (1994). The report also found that 66% of listed species have over 60 percent of their total habitat on nonfederal lands. Id. at 1. The largest nonfederal landowner category is privately owned land. Id. at 6. For a general description of the private land endangered species conservation problem generally, see Bean, supra note 100; J.B. Ruhl, The Endangered Species Act and Private Property: A Matter of Timing and Location, 8 CORNELL J.L. & PUB. POL'Y 37 (1998).
146. Id.
Therefore, the Services have been reluctant to declare outright opposition to proposed federal actions. Due to the Services' relative political weakness compared to the action agencies as well as their desire to negotiate compromises, the invocation of prohibition through jeopardy opinions remains exceedingly rare. Professor Cheever adds that:

The relative prominence of the Act's prohibitive mandates in the eyes of scholars, courts, and the public prevents it from educating people about the need for species preservation. When discussion focuses on whether Section 9 prohibits logging in the Pacific Northwest or Section 7 prevents construction of a federal dam, the underlying justification for the Endangered Species Act—that prudence dictates that we preserve the biological diversity on which we depend—is obscured.

As an antidote to the prohibitory focus of the ESA, Cheever urges a shift in focus to the recovery mandates of the Act. While Cheever does not identify the 4(d) rule as a vehicle for this change, he has identified the existing, but largely dormant, principle of the ESA that needs to be awakened. Though underscored by the stated congressional purpose of the act, the Section 4 recovery plan mandate, and the Section 7 duty to conserve, the Services have lost sight of the recovery objective and have implemented programs that fail to make progress toward recovery.

Beginning in 1993, the Clinton Administration ushered in a new, more flexible, permitting era that transformed the implementation of the ESA. Recall that Congress amended the ESA in 1982 to provide incidental take permits and endorse a negotiated conservation and land development plan in San Bruno Mountain, California. Up until 1992, the Services had issued only 14 permits. Then, in the first three years of the Clinton Administration, the Services issued about 100 permits. By 2001, the Services had approved 379 habitat conservation plans in 524 incidental take permit applications.

150. Id. § 1533(f).
151. Id. § 1536(a)(1).
152. HABITAT CONSERVATION HANDBOOK, supra note 118, at i.
permits covering approximately 20 million acres and protecting 200 listed species. The second of the two U.S. Supreme Court decisions interpreting the ESA, Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, which upheld the Fish and Wildlife Service's definition of certain forms of habitat modification as prohibited takes (needing permits), symbolizes the focus of this era.

Murray Feldman and Michael Brennan have characterized the shift from TVA to Sweet Home as a movement in emphasis from individual species and specific projects to multi-species habitat conservation. Their observation reflects the insight that Sweet Home's importance lay not so much in defining the precise parameters of a harm to an individual of a listed species that might constitute a prohibited taking. Rather, its significance was endorsing the regulation that forces sponsors of habitat altering activities to apply for permits from the Services. However, Feldman and Brennan overstate the multi-species aspect of the shift represented by Sweet Home. Certainly, the Services prefer multi-species, comprehensive, large-area habitat conservation plans to serve as the basis for permits. But, the Services are largely limited to reacting to permit applications. The fact of the matter is that few permits provide multi-species habitat conservation. So, while a shift to multi-species habitat conservation is a desirable goal, the incidental take permit program is a weak vehicle for reaching that destination. Furthermore, the standard for approving incidental take permits is not conservation, or recovery, but the absence of a likelihood of appreciably reducing the species' survival.

We must be careful not to overstate Sweet Home's importance.

158. At roughly the same time, the new EPA stormwater construction permit program encouraged developers to seek HCP approval so that they could more easily fulfill the stormwater permit requirements. Ruhl, supra note 108. See 40 C.F.R. § 122.26 (2001). Stormwater permitting is now an important driving force behind the increase in HCPs.
159. See infra note 525 and accompanying text.
while recognizing its significance in symbolizing the shift in the focus of the ESA program. While *Sweet Home* may have stiffened the burden of proof for proving causation in a harm claim under Section 9, it certainly strengthened deference to Service determinations of what constitutes a harm. In HCP negotiations, the post- *Sweet Home* Service, in the absence of contradictory information, could insist on a bottom line, such as ten acres of disturbance, above which habitat degradation would rise to the level of a take.

*Sweet Home* did, however, reflect the transformation in the way the Services viewed the Section 9 prohibition against take. In the earlier era, the prohibition usually represented a threshold activities could not cross. In the permitting era, the prohibition became the incentive for people to come to the Service and propose habitat conservation plans in order to engage in activities resulting in incidental take. Viewed from this perspective, implementation of the ESA shifted to a pollution control model. Just as the Clean Water Act prohibition on the "discharge of any pollutant" operates primarily as a basis for requiring dischargers to conduct their activities in accordance with permits, the ESA prohibition against take became a basis for closer regulation of habitat degradation. Similar to the manner in which the discharge prohibition functions as a tool primarily to control rather than eliminate the addition of pollutants to water (though elimination is a stated objective of the Clean Water Act), the take prohibition now functions as a tool to control habitat degradation rather than prevent it.

The important gap in this analogy between the ESA and a classic pollution control statute is that there remains in the ESA a larger disparity between the capability of the permitting program and the ultimate goal of the Act, recovery of the ecosystems upon which listed species depend. In the Clean Water Act, the disparity between permitting and eliminating discharge slowly closes as technology-based effluent standards set zero discharge limits unless they are not economically feasible. Also, ambient water quality standards are designed to promote incremental improvements over time, which may further reduce discharges. In
the ESA, the Services do not require incidental take permits to make progress toward recovery.165 The incidental take permit requirements are more oriented toward mitigating harm to species than toward improving their status. This is one important reason why the next step in the development of the ESA program should be the adoption of permit standards that demand progress toward species recovery.

B. The Role of State and Local Government: Cooperative Federalism

Another weakness of the ESA program revealed by comparing it to pollution control law is the lack of cooperative federalism. Since 1970, pollution control legislation has given states an important role in implementation.166 States typically are responsible both for issuing permits (e.g. Pollutant Discharge Elimination System permits for water pollution control)167 and designing comprehensive plans (e.g. state implementation plans to reduce air pollution)168 under guidelines set by the federal government. States and localities that fail to meet the federal minimum standards may not receive authority under federal law to create a plan or run a program that qualifies for the benefits under the federal statute.169

incremental improvements over time. See ROBERT W. ADLER ET. AL, THE CLEAN WATER ACT 20 YEARS LATER (1993); OLIVER HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY AND IMPLEMENTATION (EnvtL. L. Inst. 1999); Oliver Houck, Of BATS, Birds, and B-A-T, The Convergent Evolution of Environmental Law, 63 MISS. L.J. 403 (1994). But, the Clean Water Act program is nonetheless more highly evolved than the ESA program in maintaining incentives for and achieving some continual progress toward statutory goals.

165. HABITAT CONSERVATION HANDBOOK, supra note 118, at 3-20.


168. See infra notes 468 – 489 for a discussion of state implementation plans.

169. Several states have never received EPA authorization to run permit programs under federal pollution control statutes. LAW OF ENVIRONMENTAL PROTECTION, supra note 166, § 6.02[1] n.8. However, the EPA has never withdrawn authorization from state programs,
The federal government must then operate the program directly or develop the plan for the state. The federal government continues to possess independent enforcement authority even in states that have authorized programs. 170

States and local jurisdictions have several incentives to work with the federal government to seek federal authorization for these pollution control programs. First, although they do not enjoy unbounded discretion under federal oversight, states do gain a fair amount of leeway in tailoring the program to their particular needs and goals. Second, through grants and cooperative agreements, participating states can get federal money. 171 Finally, the constituents of state and local governments frequently prefer to deal directly with their local governments than with federal agencies. Likewise, these state and local governments generally believe themselves to be less bureaucratic and more responsive to the needs of their area than the federal agencies.

For these reasons, despite its sometimes messy and redundant administrative framework, cooperative federalism has proven to be one of the most enduring characteristics of pollution control law over the past three decades. Nonetheless, the ESA program has yet to realize the potential of cooperative federalism. 172 Our recommendations for the implementation of the Section 4(d) program aim to enlist the strengths of cooperative federalism to recover species.

once approved. Id. at § 6.02[3]. On the other hand, the EPA has intervened (albeit reluctantly) to write federal implementation plans for states that have failed to submit adequate state plans for controlling air pollution. See, e.g., id. at § 11.02[4][b][iii] n.184.

170. LAW OF ENVIRONMENTAL PROTECTION, supra note 166, § 6.02[3]. Recent litigation explores the limits of this authority. See Harmon Indus. v. Browner, 191 F.3d 894 (8th Cir. 1999) (RCRA does not allow the federal government to "overfile" an enforcement action on a matter that the state and the polluter have resolved through a consent decree).

171. In the case of the state implementation plan program of the Clean Air Act, states may lose federal highway grants if they fail to fulfill their role in the cooperative framework. 42 U.S.C. § 7509(b)(1) (2001).

172. Professor Tarlock has noted that the decentralized and site-specific character of biodiversity protection calls for local controls on land use. Tarlock, Local Government Protection of Biodiversity, supra note 2, at 557-558. See also Daniel C. Esty, Revitalizing Environmental Federalism, 95 Mich. L. Rev. 570 (1996) (summarizing the merits of central and decentralized control of behavior to achieve environmental goals); Richard B. Stewart, Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy, 86 Yale L.J. 1196, 1210-1222 (1976) (seminal article reviewing federalism issues in environmental law); Philip J. Weiser, Towards a Constitutional Architecture for Cooperative Federalism, 79 N.C. L. Rev. 663, 664-673 (2001) (analyzing the structure and importance of cooperative federalism).
1. ESA Section 6: Cooperation with States

Section 6 of the ESA requires the Services to "cooperate to the maximum extent practicable with the States." 173 Like most federal pollution control statutes, which allow a state law to operate if it is more stringent than the federal program, the ESA does not pre-empt a state taking prohibition that is more protective than the federal rule. 174 Section 6 contains programs to funnel management authority and funds to states that develop programs, regulations, and reserves for listed species. Though these programs have played a relatively minor role in ESA implementation compared to the similar cooperative federalism programs in the pollution control area, the ESA authorization is strikingly strong. 175

For instance, as Michael Bean and Melanie Rowland point out, the Service is required to approve any state conservation program that meets the statutory criteria. 176 The statutory criteria are almost exclusively focused on the existence of authority for a state agency to act under a program rather than the state agency's actual track record in implementation. 177 Approved programs become cooperative agreements between the state and the Service. States are eligible to receive federal funding to cover up to 90 percent of the cost of an approved cooperative agreement. 178 In recent years, federal funding for Section 6 programs has risen steadily in both absolute terms and as a percentage of the total FWS budget. 179 Also, a qualified state employee acting under a cooperative agreement may, under certain conditions, take a listed

174. Id. § 1535(c), (f). These more restrictive state laws would not bind federal agencies, however, under the principles of intergovernmental immunity. See Kleppe v. New Mexico, 426 U.S. 529 (1976).
175. BEAN & ROWLAND, supra note 21, at 268-69.
177. 16 U.S.C. § 1535(c) (1994). This troublesome focus on authority rather than actual implementation has emerged as a problem with the EPA's approval of state programs under pollution control statutes. Markell, supra note 166.
179. The appropriation for § 6 programs rose from $6,671,000 (approximately 1% of the total FWS budget) in 1990, to $9,000,000 (approximately 2% of the total FWS budget) in 1993, to $14,000,000 (approximately 2% of the total FWS budget) in 1998, to $23,000,000 (approximately 3% of the total FWS budget) in 1999. Pub. L. No. 101-512, 104 Stat 1918 (1990); Pub. L. No. 103-138, 107 Stat. 1382-1383 (1993); Pub. L. No. 105-277, 112 Stat. 2681-236-237 (1998); Pub. L. No. 106-113, 113 Stat. 1501A-139-140 (1999). These figures do not include earmarked appropriations for particular state conservation efforts, such as the Washington salmon recovery strategy. See infra note 393 and accompanying text.
species covered by the agreement without risking Section 9 liability.\textsuperscript{180}

However, despite some conflicting statutory language,\textsuperscript{181} federal ESA take prohibitions continue to preemt more permissive state rules even if the state rules are part of an approved cooperative agreement.\textsuperscript{182} And, unlike the pollution control cooperative agreements, the ESA has no provision to allow states to take over a federal permit program, i.e. ESA Section 10. Nonetheless, Section 4(d) can be employed to allow states to create new (and use existing) permit programs to meet the recovery goals of the Act, while obviating the need for citizens to apply for federal Section 10 permits. We explore this method of employing the 4(d) rule in the following sections of this article.

The Services are accustomed to working with state natural resource and game or fish departments under Section 6. The demands of comprehensive habitat conservation will impel the Services to turn to local land use jurisdictions for cooperative partnerships. This will open the Section 6 coffers to a new constituency.

2. State and Local Governmental Indirect Liability

In addition to the statutory inducements for states to engage in cooperative management of listed species protection, there is also an emerging line of case law that provides a strong impetus for the states to seek a cooperative program with the Services. States and agents of the state, such as state agencies and municipal governments, may be indirectly liable for the private takes resulting from government-authorized actions.\textsuperscript{183} Government units may also be liable under Section 9 for inaction, where it causes a take "to be committed."\textsuperscript{184} Therefore, a state has an incentive to cooperate with federal programs if it will receive in exchange some

\textsuperscript{180} 50 C.F.R. §§ 17.21(c)(5), 17.31(b) (1999).

\textsuperscript{181} Compare 16 U.S.C. §§ 1535(g)(2)(A) and 1533(d) with 16 U.S.C. § 1535(f). See discussion infra notes 237-240 and accompanying text.


shield from this indirect Section 9 liability.

The ESA Section 9 prohibitions apply to persons, and so may 4(d) rules. The Act defines "person" to include "any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State; [or] any State, municipality, or political subdivision of a State." Although the Eleventh Amendment bars a citizen suit against a state, the federal government can enforce take prohibitions against a state. Or, citizens can obtain declaratory and injunctive relief against a state official in his or her individual capacity.

The leading case analyzing Section 9 indirect governmental liability for states, Strahan v. Coxe, may be seen as a harbinger of the next era of ESA programs that rely on cooperative federalism. In Strahan, the First Circuit found Massachusetts state officials liable for issuing gillnet and lobster pot fishing licenses which authorized practices that resulted in prohibited takes of the endangered northern right whale. The whales become entangled in fishing and lobster gear during certain times of year in waters off the coast of Massachusetts, within the three mile jurisdiction of the state. Clearly, a person operating fishing gear that foreseeably injures or otherwise takes an endangered whale is liable under Section 9. In addition, the court held that Section 9 extends liability to governmental "third parties that allow or authorize acts that exact a taking and that, but for the permitting process, could not take place."

In justifying its extension of the ESA prohibitions to state permitting officers, the court argued that this form of third-party, indirect liability falls within the common law tradition of proximate cause used to help interpret the Act. Additionally, the court cited Sweet Home to establish the interpretive rule that "take"
should be defined broadly. In defining the scope of indirect governmental liability, the court distinguished driver’s licenses from the fishing licenses at issue in the case:

Whereas it is possible for a person licensed by Massachusetts to use a car in a manner that does not risk the violations of federal law suggested by the defendants, it is not possible for a licensed commercial fishing operation to use its gillnets or lobster pots in the manner permitted by the Commonwealth without risk of violating the ESA by exacting a taking . . . . Where the state has licensed an automobile driver to use that automobile and her license in a manner consistent with both state and federal law, the violation of federal law [e.g., using a car to rob a federally insured bank] is caused only by the actor’s conscious and independent decision to disregard or go beyond the licensed purposes of her automobile use and instead to violate federal . . . law . . . . In this instance, the state has licensed commercial fishing operations to use gillnets and lobster pots in specifically the manner that is likely to result in a violation of federal law. The causation here, while indirect, is not so removed that it extends outside the realm of causation as it is understood in the common law.

As if to highlight the importance of this distinction, the same court, in an unpublished opinion, later dismissed the same plaintiff’s claim that the U.S. Coast Guard was liable for takings by private vessels that received “certificates of documentation and inspection.” Federal law requires the Coast guard to issue these certificates to vessels meeting certain statutory criteria, none of which relates to environmental concerns. The court, explicitly distinguishing the above-quoted passage from Strahan, found the certificates to be analogous to the licenses for automobiles and drivers.

Holding the government liable under the ESA for the use of regulatory authority in a manner that authorizes others to violate provisions of the Act had precedent. In 1989, the Eighth Circuit held that the U.S. Environmental Protection Agency (“EPA”) violated Section 9 in registering pesticides containing strychnine. Application of the strychnine pesticides resulted in takes of listed

193. Id. at 164.
195. Id.
species that were not the targets of the pesticides but that ate poisoned carcasses. The EPA itself neither applied nor distributed the pesticides, but the court held the agency liable nonetheless because the pesticides may be used legally only if registered. The court held that this connection between the poisoning and the agency regulation was clear enough to trigger Section 9 liability.\footnote{197} In reaching its holding, the court cited an earlier case where the FWS violated Section 9 by authorizing the use of lead shot ammunition by hunters, which resulted in secondary poisoning of endangered eagles.\footnote{198}

\textit{Strahan} is particularly significant because it signals that the judiciary may enforce responsibilities on non-federal governmental units which are not subject to the Section 7 conservation duty to ensure that they do not authorize activities that lead to takes. This is consistent with \textit{Sweet Home}, which endorsed the view that harm may be indirect as long as it occurs through a “foreseeable chain of causation.”\footnote{199} Nonetheless, the recent Supreme Court decision of \textit{Bd. of Trustees of the Univ. of Alabama v. Garrett} raises the possibility that Congressional imposition of such requirements on state government is unconstitutional.\footnote{200}

In 1998, the U.S. District Court in Massachusetts, deciding \textit{United States v. Town of Plymouth},\footnote{201} extended the indirect liability of \textit{Strahan} to a municipality whose inaction likely caused the taking of threatened piping plovers.\footnote{202} The Plymouth town beach hosted breeding piping plovers that nested and fed in the same area used by off-road vehicles (ORVs). The court found that the ORVs disturbed these essential behavior characteristics.\footnote{203} But, in addition to the liability of the ORV operators, the court also found the town liable for causing the harm to occur. Though town em-

\footnote{197. 882 F.2d at 1301.}
\footnote{199. BEAN \& ROWLAND, supra note 21, at 222. Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 697-698 (1995). Finding a “foreseeable chain of causation” connecting land uses with harm to listed species, however, may create greater challenges. We discuss this issue at greater length in note 213, infra.}
\footnote{200. 121 S. Ct. 955 (2001) (invalidating the application of the Americans with Disabilities Act against an entity of a state).}
\footnote{201. 6 F. Supp.2d 81 (D. Mass. 1998).}
\footnote{202. The court issued a preliminary injunction after it found that the FWS showed a likelihood of prevailing on its claim that current town management of its beach had and would continue to harm piping plovers. \textit{id}. at 91.}
\footnote{203. \textit{id}. At least one dead bird was found in an ORV tire track.}
ployees had authority to close the beach to ORVs, town officials prevented the employees from taking that protective action.\textsuperscript{204}

An important factor that led the \textit{Town of Plymouth} court to impose indirect liability for inaction was the long history of FWS warnings about takes caused by permissive beach management allowing ORVs.\textsuperscript{205} For five years, the FWS attempted to work with the town on a management plan, and even came to an agreement which the town failed to implement. The town's failure to carry out its obligations under the agreement, specifying what steps were necessary to avoid indirect take liability, created a situation where a court could identify with precision what actions the town failed to take.

Still, the \textit{Town of Plymouth} decision significantly extended indirect liability to a situation where the governmental unit did not issue any license or permit specifically allowing the action (ORV use) causing the take to occur. Instead, the town failed to meet an affirmative duty to exercise its authority to prevent activities that proximately cause takes.\textsuperscript{206}

Another recent application of indirect municipal take liability involves two species of endangered turtles and one species of threatened turtle that use the beaches of Volusia County, Florida, seasonally for nesting. The county, in recognition of its governmental liability, secured an incidental take permit for allowing private vehicles to drive on its beaches at night. However, the permit did not cover takings caused by stationary artificial lights.\textsuperscript{207} The recent phase of the litigation addressed the county's liability for its artificial lighting ordinance. Artificial lighting can disorient turtle hatchlings who must migrate at night across the beach from their birth nest to the sea via reflection from the surf. While the U.S. District Court found that artificial lighting on private property is responsible for the taking of sea turtles,\textsuperscript{208} it none-

\textsuperscript{204} Id.
\textsuperscript{205} Id.
\textsuperscript{206} See Petersen, \textit{supra} note 183, at 434. In this respect, Town of Plymouth builds on dictum in Sierra Club v. Lyng, 694 F. Supp. 1260 (E.D. Tex. 1988), \textit{aff'd in part sub nom}. Sierra Club v. Yeutter, 926 F.2d 429 (5th Cir. 1991), which suggested that Forest Service failure to control the encroachment of trees contributed (along with affirmative actions, such as clearcutting) to the take of the endangered red-cockaded woodpecker. For another view on this issue of indirect takes, see \textit{BEAN} \& \textit{ROWLAND}, \textit{supra} note 21, at 222-223.
\textsuperscript{208} Loggerhead Turtle v. Council of Volusia County 92 F. Supp. 2d at 1304-5.
theless found the county not indirectly liable for those violations of the Act. The court accepted the county's argument that while it does regulate artificial lighting (to protect the turtles), it does not allow beach lighting that harms turtles and should not be held liable simply because its ordinance is ineffective in preventing all takes. The court rejected the contention of the plaintiffs that the county "is responsible for the ESA-violative conduct of its residents under an 'implied permission' theory."

In holding that the county was not liable for the acts of its citizens, the Volusia County court limited the Strahan principle to situations where a regulatory scheme authorizes, entitles, or legitimates an activity that results in a take. In contrast to the Massachusetts fish licensing program, the Volusia County court found that the Volusia ordinance sought to restrict artificial beachfront lighting but did not succeed entirely. The Volusia County decision is puzzling in this respect and does not identify why the county ordinance fails to eliminate takes from artificial lighting. The court seems to rule out the possibilities that the ordinance itself is defective or that the county's enforcement scheme is lax. What explanation remains for the lighting takes? Perhaps there is some inherent limitation in county authority to make rules and enforce them that allows residents to use lights that take turtles. The court may have believed that it is unfair to punish a county for doing the best it can to reduce harmful artificial lights. But, in Strahan, Massachusetts did establish limitations in its fishing licenses to reduce conflicts with whales; it simply did not limit the fishing activities effectively enough. From this perspective, the two cases are difficult to reconcile.

Nonetheless, the results in the cases support some general distinctions. First, where a jurisdiction, such as Plymouth, owns and operates a property, such as the beach, courts are likely to impose greater affirmative duties for protecting listed species under Section 9 than for a jurisdiction exercising police powers over private property. State or municipal ownership of property is likely the only situation where a court would find that complete failure to

209. Id.
210. Id. at 1307.
211. Even if the county did fail to enforce its rules, courts are unlikely to intervene in such an essential police function, absent some pattern of bias. See, e.g. Heckler v. Chaney, 470 U.S. 821, 831-32 (1985).
regulate rises to the level of a Section 9 violation.212

Second, and more relevant to the urban land use context where most jurisdictions do engage in some regulation, permitting is different from standard setting. A standard setting ordinance, such as the one enacted by Volusia County, sets out general requirements to protect species but does not translate the requirements to the site-specific circumstances in which they apply. Courts will likely not find Section 9 liability for standard setting ordinances that generally succeed in protecting listed species, are enforced in good faith, but that fail to prevent takes in some circumstances.213 By contrast, in permitting, an agency typically authorizes a particular person to engage in a specific activity. In this situation, such as in Strahan, the application of standards to a particular set of facts through a permit gives rise to a relatively greater responsibility for takes that result from the activities authorized under the permit. This might create a perverse incentive for state and local governments to avoid even attempting to regulate activities that result in takes. However, in many jurisdictions, especially cities, some form of land use control, which regulates activities causing habitat destruction,214 is already in place. In urban areas, where land use regulation tends to be the most stringent and permits for construction and modification of improvements are common, the governmental action will be closer to the affirmative authorizations in Strahan.215 In part for this reason, urban areas will have strong incentives to cooperate with the Services in developing comprehensive 4(d) rules, especially where direct habitat modification from activities governed by land use controls is the primary hurdle to recovery.216


213. For instance, if Plymouth had enacted a beach closure rule but a few scofflaws failed to abide by the restriction on use, the court would likely not have held the town liable. I thank Prof. Holly Doremus for sharing this prediction with me.


215. For instance, Petersen, supra note 169, at 430, uses the example of the City of Seattle issuing “a developer a permit to raze an old warehouse downtown and build a new condominium complex.” If the resulting runoff harms the threatened Puget Sound chinook salmon, then the city will likely be liable under Section 9. We discuss Seattle’s response to this prospect in great detail infra at V(B)(2).

216. This may have been a factor influencing the recent decision by the Pima County, Arizona, Administrator to withhold land use permits until the applicants show that the
As we discuss in greater detail infra at VI(B)(5), an important factor weakening the incentive that state and local governments have to seek Section 4(d) rule protection from take liability is the attenuated proximate causation of harm to listed species from land use. In Strahan, Plymouth, and Volusia, the harm to the listed species could be observed directly. Whales could be seen entangled in nets, plovers could be found crushed in tire tracks, and turtles could be observed disoriented by artificial lights. In contrast, it might be very difficult to observe or identify individual gnatcatchers hurt by lost nesting habitat or individual salmon loses due to reduction in suitable streambeds for hatching. Indirect governmental liability for authorizing private takes is only as strong as the causation of the harm from the private activity. The Services can strengthen the connection, however, by using a 4(d) rule to clarify the types and extent of activities that will likely harm a particular species in a particular area.\textsuperscript{217}

Also, as Professor Ruhl points out, there are some serious problems with the theory of indirect governmental liability that may doom this emerging line of cases. In addition to raising Tenth Amendment concerns about forcing states to adopt protective measures, Professor Ruhl argues that the structure of the ESA itself and the unfairness of vicarious liability make Strahan an untenable precedent.\textsuperscript{218} Moreover, Ruhl observes that ESA indirect liability departs from pollution control law federalism: state or local governments may issue land use or regulatory permits without assuming responsibility under federal law for any contamination that results from the authorized activity.\textsuperscript{219} Without question, the indirect liability case law has yet to come into logical focus. However, it nonetheless contributes to the incentives motivating state and local governments to work with the Services to protect listed species. And, the successful operation of ESA Section 4(d) does not require an expansive theory of indirect governmental liability, though it may help.

FWS has approved their plans to protect the listed pygmy owl. Blake Morlock, Building Halted on Owl Habitat, TUCSON CITIZEN, Jan. 13, 2001, at 1A. The county action affected four planned subdivisions, three churches, two office complexes, several businesses, a fire station, and the expansion of a park. \textit{Id}.

\textsuperscript{217} See discussion infra at VI(A)(6).

\textsuperscript{218} Ruhl, \textit{supra} note 212, at 76. Ruhl has no quarrel with Town of Plymouth because of the proprietary basis of the governmental liability. \textit{Id} at 73.

\textsuperscript{219} \textit{Id}. at 74.
Section 4(d) is poised to usher in the next era in the development of the ESA program. It presents an opportunity to marry federal recovery goals with state programs regulating activities that harm species threatened with extinction. The 4(d) rule authority has been used for some time, especially by the NMFS. However, its application to date has been narrow. The next section of this article describes two important current experiments with Section 4(d), which will reveal some lessons for tapping the full potential of the program.

V. EMERGING APPROACHES UNDER ESA SECTION 4(d)

In Section III of this article, we described the different treatment that ESA Section 9 accords threatened, as compared with endangered, species. Species listed as endangered are protected by a series of prohibitions specified in the Act itself. In contrast, the Services may, by regulation, establish the prohibitions that pertain to species listed as threatened. A 4(d) rule is one that tailors a particular set of prohibitions to suit the threats to a particular species. This part of the article reviews the experience with the 4(d) rule to date. Part A describes the legislative history, mechanics, and judicial interpretation of ESA Section 4(d). Part B focuses on two innovative and comprehensive 4(d) rules that point in a new direction for recovery through comprehensive cooperative federalism.

To date, most 4(d) rules tailored to particular species, as opposed to those that merely extend the general terms of the Section 9 endangered species take prohibitions, have focused on animal management measures, such as trapping wolves or excluding sea turtles from seafood harvesting. While these rules are important, they do not address the most important cause of listing, habitat degradation. There are a few important experiments with 4(d) rules, however, that begin to address the greatest challenge to recovery, maintaining and restoring the ecosystems on which species depend. Because land use control is primarily a state function, these 4(d) rules require cooperation between the Services and the states. The two subsections of Part B describe innovative 4(d) rules that offer important lessons for using this section of the ESA

as a vehicle for more comprehensive conservation planning.

A. Introduction to Section 4(d) Rules

The single most important standard for the promulgation of the 4(d) rule is that it “provide for the conservation” of the threatened species. In contrast to the jeopardy or the HCP standard, then, the 4(d) rule cannot merely mitigate threats to survival. A 4(d) rule must contribute to the recovery of the species. The affirmative federal duty to promote conservation also supports this interpretation of the recovery standard for 4(d) rules.

When Congress enacted the ESA in 1973, its discussion of how the statute would work centered principally around two issues: the creation of the threatened category of species not yet at the brink of extinction, and the role of states in conservation. The 4(d) rule can revitalize these two original concerns of the ESA by linking them through cooperative federalism. In providing authority for the Services to intervene to protect species before they reach endangered status, Congress sought to avoid “a long, costly, and frequently unsuccessful process,” and increase the likelihood of recovery.

The legislative history of the ESA does not include much analysis of Section 4(d). Congress intended to provide the Services with “discretionary authority . . . to regulate the import, taking, and interstate transportation” of threatened species to minimize the

222. Id.

223. See 16 U.S.C. § 1532(3) (defining conservation to mean the use of all methods and procedures which are necessary to bring any listed species to the point at which the measures of the ESA are no longer necessary). The strongest judicial endorsement of this principle is Sierra Club v. Clark, 755 F.2d 608, 612-618 (8th Cir. 1985) (reading the definition of conservation, Section 4(d), and the conservation duty of Section 7(a)(1) as mutually reinforcing). See also Holly Doremus, Restoring Endangered Species: The Importance of Being Wild, 23 HARV. ENVTL. L. REV. 1, 27 (1999) (reading the Act to require 4(d) rules to “provide enough protection to ensure progress toward removal from the protected list”).

224. See, e.g., Defenders of Wildlife v. Andrus, 428 F. Supp. 167, 170 (D.D.C. 1977) (finding that the Service “must do far more than merely avoid the elimination of protected species. It must bring these species back from the brink so that they may be removed from the protected class . . . . The Service cannot limit its focus to what it considers the most important management tool available to it.”).


use of the most stringent taking prohibitions in every case.\textsuperscript{228} In those areas where species were merely "threatened," this type of discretion would allow the Secretary to reduce economic hardships by promulgating less stringent taking prohibitions. Both the testimony of Nathaniel P. Reed, Assistant Secretary of the Interior for Fish, Wildlife and Parks, and the committee report for the House bill indicate that the Services can tailor a set of prohibitions that address the particular circumstances faced by a threatened species.\textsuperscript{229} Professor Doremus accurately summarized the overall sentiment of both the Administration and Congress in 1973 that Section 4(d) should promote flexible rules to meet the needs of species recovery while "minimizing impacts on economic activity."\textsuperscript{230} Though these statements indicate that Congress intended Section 4(d) to loosen the Section 9 prohibitions for threatened species when appropriate, nothing in the history suggests that anyone envisioned that this section could spur a comprehensive species management program. There is also no direct evidence in the legislative history to indicate that Congress anticipated cooperative federalism to be a method of implementing a 4(d) rule. Though the statutory intent of the ESA clearly envisioned more state participation in conservation efforts than has occurred to date,\textsuperscript{231} Congress hoped that the Section 6 cooperative programs with states\textsuperscript{232} would play that role, not Section 4(d).

Although there is little litigation of 4(d) rules, the recovery mandate has influenced judicial review of 4(d) rules in two ways. First, the strong conservation language supports the Services when 4(d) rules are challenged as being too restrictive and con-
taining prohibitions unnecessary for conservation. Courts have responded with great deference to Service expertise on what is necessary for recovery and Service presumptions that measures designed to abate the decline in populations of threatened species will contribute to recovery.233

Second, the conservation criterion may weaken deference when 4(d) rules are challenged as too permissive. In overturning the FWS 4(d) rule to allow public sport trapping of eastern timber wolves, the Eighth Circuit stressed that the Service’s discretion “is limited by the requirement that the regulations” provide for conservation.234 The court used this limitation to endorse the long-standing interpretation of the ESA that “before the taking of a threatened animal can occur, a determination must be made that population pressures within the animal’s ecosystem cannot otherwise be relieved.”235 The connection between Section 4(d) and the statutory conservation definition was especially important in the wolf case. That is because the ESA, after listing a number of conservation methods, including census, habitat maintenance and law enforcement, explicitly conditions regulated taking on “the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved.”236

Section 4(d) contains a perplexing exception to the applicability of 4(d) rules in any state that has entered into a cooperative agreement with the Service. In that instance, Section 4(d) applies only to the extent that it has also been adopted by the state.237 In construing this provision, courts have required that state cooperative agreements, to be valid, must contain protections at least as stringent as federal prohibitions.238


234. Sierra Club v. Clark, 755 F.2d 608, 612-613 (8th Cir. 1985).

235. Id. at 613 (citing 577 F. Supp. 783, 787 (D. Minn. 1984)). The district court applied this principle in earlier litigation to uphold a wolf trapping program in the “extraordinary” situation where population pressures within the ecosystem needed to be relieved by regular taking of excess wolves. Fund for Animals v. Andrus, 11 Env’t Rep. Cas. (BNA) 2189, 2199 (D. Minn. 1978).


237. Id. § 1533(d).

Turner, the court rejected a claim that Montana law, which does not include harm in its definition of take, controlled prohibitions on taking threatened grizzly bears because the state had a cooperative agreement with the Service. In holding that the federal 4(d) prohibition, including harm, applied in Montana, the court relied in part on the interpretive principle that the Congress gave "overwhelming priority" to the preservation of listed species. Also, the ESA provision dealing with conflicts between federal and state laws in Section 6 (on cooperation with states) is explicit about preemption of state regulations weaker than the federal regulation. The lesson here is that the services can rely on 4(d) rules to develop conservation strategies without having to worry about the terms in cooperative agreements creating loopholes through weaker state standards. As in the pollution control area, states may enforce more stringent standards but weaker state rules will not supplant the federal floor of protection.

Most of the controversial applications of Section 4(d) involve two situations. First, some 4(d) rules grant permission for particular kinds of takes (such as capturing for scientific purposes or incidental harms from specified activities) without a Section 10 permit. Second, some 4(d) rules are used to tailor more lenient take rules than would otherwise apply for a group individuals of a listed species released in an area as an "experimental population." This article recommends that the 4(d) rule be used in a different way, to encourage states to incorporate threatened species habitat recovery in land use regulation.

also United States v. Glenn-Colusa Irrigation Dist., 788 F. Supp. 1126 (E.D. Cal. 1992). BEAN & ROWLAND, supra note 21, at 270 also endorse this interpretation.

239. Swan View, 824 F. Supp. at 938.


242. See, e.g., 50 C.F.R. §§ 17.44(j), 17.44(k), 17.46(a) (allowing take of the Foskett speckled dace, the Niangua darter, and a cave-dwelling isopod, respectively, for scientific purposes); 50 C.F.R. §§ 17.40(i), 17.42(b), 17.42(f), 17.44(f) (allowing incidental catch or take of the Louisiana black bear, a variety of threatened sea turtles, the southern populations of the bog turtle, and the Warner sucker, respectively, under certain specified conditions); 50 C.F.R. § 17.40(b) (allowing removal of nuisance grizzly bears).

B. Two Models for Comprehensive Section 4(d) Rules

The Services have twice used the ESA Section 4(d) to incorporate state and local conservation initiatives into limitations on prohibitions: in 1993 for the coastal California gnatcatcher, and in 2000 for several runs of West Coast salmon. In these cases, state initiatives to address habitat loss influenced the Services to list the species as threatened (rather than endangered) and prepare a 4(d) rule. This part examines two situations where these 4(d) rules apply to urban areas experiencing development pressure. Land use decisions in coastal southern California and in the Puget Sound will decide the fate of the coastal California gnatcatcher and the Puget Sound chinook salmon respectively. Both areas are involved in comprehensive planning under the auspices of local land use authorities, state programs, and a federal 4(d) rule. However, while the 2000 salmon 4(d) rule employs recovery as a standard for approving comprehensive habitat protection plans, the 1993 gnatcatcher 4(d) rule runs afoul of the ESA in mandating only jeopardy avoidance in local plans that receive limitations from the general take prohibition.

1. The Coastal California Gnatcatcher: Natural Community Conservation Planning

The coastal California gnatcatcher is a small, long-tailed subspecies of bird in the thrush family. It dwells in southern coastal California and northwestern Baja California, Mexico. The non-migratory bird occurs "almost exclusively" in the coastal sage scrub plant community that is composed of short deciduous and succulent plants. With the widespread fragmentation and destruction of this habitat due to urban development, the gnat-
catcher populations have declined to 1000 to 1500 pairs. Most of the remaining habitat and birds occur on private lands in Orange, Riverside, and (predominately) San Diego County.

Subsection (a) reviews the FWS listing and 4(d) rule for the gnatcatcher. Subsection (b) examines the California program that provides the framework for regional planning to balance conservation with development. Finally, Subsection (c) describes the application of the California program and the 4(d) rule to the coastal sage scrub ecosystem subregion in San Diego County.

a. The Gnatcatcher 4(d) Rule

In March, 1993, the FWS listed the coastal California gnatcatcher as threatened and proposed a 4(d) rule to authorize certain land use activities under the state Natural Community Conservation Planning (NCCP) program. This state program, discussed in greater detail below, encourages private land owners to collaborate with public entities to develop land use plans that protect wildlife while allowing compatible growth. The FWS found that the Coastal Sage Scrub NCCP effort reduced the risks of extinction for gnatcatcher. As a result, the Service listed the bird as

247. Id. at 16,743.
248. Id.
249. Determination of Threatened Status for the Coastal California Gnatcatcher, 58 Fed. Reg. 16,742 (Mar. 30, 1993). In 1994, a district court found the listing to be flawed because some of the underlying biological data supporting the listing decision were not available to the public. The court at first vacated the listing (May 2, 1994) but then reinstated the listing (June 16, 1994) pending a determination by the FWS whether the listing should be revised or revoked, after the public had a chance to review the data. Endangered Species Comm. of the Bldg. Indus. Ass'n of Southern Cal. v. Babbitt, 852 F. Supp. 32 (D.D.C. 1994). The order can be found at id. at 38. For a discussion of this litigation and other issues surrounding disclosure of biological data, see Robert L. Fischman & Vicky J. Meretsky, Endangered Species Information: Access and Control, 41 WASHBURN L.J. 90 (2001). On March 27, 1995, the Service determined that the listing and 4(d) rule should stand as they were promulgated in 1993. Notice of Determination to Retain the Threatened Status for the Coastal Cal. Gnatcatcher under the ESA, 60 Fed. Reg. 15,693 (Mar. 27, 1995). Subsequent litigation concerned designation of critical habitat. See NRDC v. United States Dep't of the Interior, 113 F.3d 1121 (9th Cir. 1997) (remanding Service decision not to designate critical habitat); 64 Fed. Reg. 5963, 5967 (Feb. 8, 1999) (designating critical habitat).
250. 1991 Cal. Legis. Serv. 765 (West), (codified at CAL. FISH AND GAME CODE §2800-2840 (West 1999)).
251. CAL. FISH & GAME CODE §2805 (West 1999).
252. Determination of Threatened Status for the Coastal California Gnatcatcher, 58 Fed. Reg. at 16746, 16753-55. Without mandatory habitat protection under state law, the voluntary NCCP proved to be insufficient to forestall listing entirely. Jon Welner, Natural Communities Conservation Planning: An Ecosystem Approach to Protecting Endangered Species, 47
threatened rather than endangered. Establishing a precedent that the NMFS would follow for the West Coast salmon listings, the FWS sought to encourage further integration of habitat protection in comprehensive land use plans by proposing a 4(d) rule that would shield from Section 9 liability local governments and developers who abide by approved agreements.

On December 10, 1993, the FWS published its final 4(d) rule for the coastal California gnatcatcher. The rule extends to the gnatcatcher all of the statutory prohibitions of Section 9 applicable to endangered animals. However, land-use activities covered by a valid NCCP plan approved by the FWS are not prohibited by the special rule. This approach of applying the general prohibitions on take, unless activities fall within a particular program receiving the Service's imprimatur, establishes the cooperative federalism framework for gnatcatcher recovery.

The rule also requires the Service to monitor implementation of the NCCP program guidelines, discussed in Subsection (b) below, that govern the development of local (“subregional”) plans, and to review their progress every six months. If the program guidelines are not making adequate progress toward NCCP objectives, then the Service will seek modifications. If the modifications do not occur, then the FWS may revoke its approval of the program. A revocation would cause the Section 9 prohibitions to apply to all activities formerly shielded by the program. The Service must publish findings for revocation and provide a public comment period before taking action. Modifications and revocations may

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255. Although the term “NCCP plan” is redundant, it is the common usage to refer to a plan developed under the Natural Community Conservation Planning Act of 1991 (CAL. FISH AND GAME CODE §§ 2800-2840). In this context, the NCCP plan refers to the subregional plans developed in accordance with the coastal sage scrub regional conservation and planning guidelines, discussed in Subpart (b) below.

256. 50 C.F.R. § 17.41(b)(2). While landowners who do not participate in an NCCP plan may still apply for an incidental take permit directly from the federal government, the Service indicated in its final 4(d) rule that, in considering a permit application, it intends to apply the very same conservation guidelines adopted by the state under the NCCP program. Special Rule Concerning Take of the Threatened Coastal California Gnatcatcher, 58 Fed. Reg. at 65,091. See also Welner, supra note 252, at 345.

257. 50 C.F.R. § 17.41(b)(4); Special Rule Concerning Take of the Threatened Coastal Cali-
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apply regionwide to the entire coastal sage scrub area, or only to particular subregions not meeting the NCCP objectives.\footnote{258} This oversight is consistent with cooperative federalism and adaptive management.

However, the gnatcatcher 4(d) rule fails to meet the ESA requirement that it "provide for the conservation" of threatened species.\footnote{259} The FWS will approve an NCCP plan meeting the regulatory criteria for an incidental take permit.\footnote{260} Many of the incidental take permit criteria, such as requiring that the take be incidental to an otherwise lawful activity, that the plan minimize and mitigate impacts, and that the plan contain assurances of implementation, are perfectly appropriate for approving plans that limit Section 9 liability under a 4(d) rule. But, the incidental take permit regulatory criteria do not require conservation or recovery of the species. Instead, the plan must "not appreciably reduce the likelihood of survival and recovery of the gnatcatcher in the wild. This criterion is equivalent to the regulatory definition of 'jeopardy' . . ."\footnote{261} As we discussed in Section III, this "no jeopardy" standard does not require the contribution toward recovery that the conservation standard of Section 4(d) does. The gnatcatcher rule adopts this weaker incidental take model of excusing or exempting takes rather than the conservation model that would limit the application of the take prohibition to plans that promote recovery.

Why did the FWS promulgate a gnatcatcher 4(d) rule that falls short of the ESA mandate for recovery? There are two factors that likely explain why the rule does not measure up to the statutory standard. First, the 1993 rule was one of the very first demonstrations of Secretary Babbitt's initiative to show that the Act provided sufficient flexibility to accommodate development. Like the overly liberal terms of the early Babbitt-era incidental take permits, the gnatcatcher 4(d) rule reflected the Service's strong desire to save the Act from the paring knives of Congress.

\footnote{258}{50 C.F.R. § 17.41(b)(4); 58 Fed. Reg. at 65,094.}
\footnote{259}{16 U.S.C. § 1533(d) (1994).}
\footnote{260}{50 C.F.R. § 17.41(b)(2)(ii); Special Rule Concerning Take of the Threatened Coastal California Gnatcatcher, 58 Fed. Reg. at 65,088. Those criteria are found at 50 C.F.R. § 17.32(b)(2).}
\footnote{261}{Special Rule Concerning Take of the Threatened Coastal California Gnatcatcher, 58 Fed. Reg. at 65,089.}
Second, years of focus on the reactive ESA Section 7 jeopardy standard blinded the Service to the greater obligations to recovery. The California NCCP seemed to promise so much in terms of comprehensive habitat planning that the Service was eager to endorse it in order to promote other broad area-wide conservation efforts. The recovery criterion hovered beyond the Service’s radar screen for encouraging innovation. In some respects, the Service confused the gnatcatcher 4(d) rule’s NCCP with an incidental take permit’s HCP, where it applies the “no jeopardy” criterion.262

The FWS does not independently review a NCCP plan for its contribution to conservation. Therefore, the gnatcatcher 4(d) rule promotes recovery only to the extent that the California NCCP program itself requires recovery.263 Although recovery is consistent with the goals of the NCCP Act, California law does not explicitly establish recovery as a criterion for an NCCP plan, as the ESA does for a 4(d) rule. The next subsections describe the state NCCP program and the way in which San Diego has used it to incorporate gnatcatcher habitat protection in land use control.

b. The California Natural Community Conservation Planning Program

The California NCCP program, like many state conservation programs, originated as an effort to forestall the need for listing under the ESA.264 Following a set of petitions in 1991 to list the gnatcatcher under the ESA, Governor Pete Wilson announced the NCCP program to promote voluntary, collaborative conservation.265 Though the program would cover all of California’s eco-

262. See, e.g., George Frampton, Ecosystem Management in the Clinton Administration, 7 DUKE ENVT. L. & POL’Y F. 39, 42 (1996) (“[T]hese NCCP plans are a special version of a device called Habitat Conservation Plans.”). Frampton was a high-ranking Clinton Administration official involved in these programs.

263. The NCCP Act requires the “perpetuation of natural wildlife diversity.” CAL. FISH AND GAME CODE § 2805(a) (West 1999).


265. Welner, supra note 252, at 338.
logical regions, the pilot application addressed the conflict between development and habitat protection in the coastal sage scrub ecosystem. A few months later, the state legislature enacted the Natural Community Conservation Planning Act, which provides a simple statutory framework for the program.

The NCCP Act encourages interagency cooperation and agreements among local, state, and federal agencies, along with private parties. These groups work together to develop natural community conservation plans, which provide for "the regional or areawide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth." The NCCP program seeks broader biological diversity protection than simply recovery of listed species. However, because the listing of the gnatcatcher presents such a great challenge for a densely populated region of California to accommodate growth and biological conservation, the coastal sage scrub (CSS) regional NCCP process is the most important application of the California law. Of course, the CSS NCCP process is also important from the standpoint of being an early attempt to introduce the cooperative federalism model to the ESA.

The CSS NCCP is comprehensive in scope. The CSS region encompasses the range of the vegetation on which the gnatcatcher depends. It includes parts of five counties in a six thousand square mile area and about a dozen subregional planning areas developing their own agreements with landowners and local jurisdictions. The counties in the CSS region have some of the highest land values in the United States, as well as one of the fastest rates of population growth. The regional plan aims to protect not just federally listed animals but a broad range of species

267. Id. at §§ 2810, 2820 (West 1999).
268. Id. at § 2805(a).
269. The administrators of NCCP program tie together the long- and short-term goals of the program by seeking to "anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process." An Introduction to NCCP, at http://ceres.ca.gov/CRA/NCCP/intro.htm (last modified Aug 12, 1997).
271. Craig Manson, Natural Communities Conservation Planning: California's New Ecosystem Approach to Biodiversity, 24 ENVTL. L. 603, 611-12 (1994); see also Sheldon, supra note 131.
native to the area.\textsuperscript{272}

The NCCP program itself does not authorize land acquisition\textsuperscript{273} or compel local participation. Instead, the program provides a framework for collaborative planning. The statute authorizes the California Department of Fish and Game to develop regional guidelines for the development and implementation of NCCP plans.\textsuperscript{274} The department, along with the California Resources Agency, issued the first set of guidelines in the NCCP program in 1993. These are the Conservation and the Process Guidelines for the CSS region.\textsuperscript{275} In 1998, the department issued more general Process Guidelines for all the other NCCP regions patterned after the Southern California CSS NCCP Process Guidelines.\textsuperscript{276} In the CSS region, the Conservation and Process Guidelines operate in tandem to enable local communities to develop subregional NCCP plans.\textsuperscript{277}

Though it did not specifically approve the CSS Guidelines, the FWS did cooperate in their preparation under a 1991 Memorandum of Understanding.\textsuperscript{278} The Service also endorsed the month-old Guidelines in its final 4(d) rule, which states that a plan must

\textsuperscript{272} For instance, the San Diego Multiple Species Conservation Program covers 85 species and 23 vegetation types. See http://www.dfg.ca.gov/nccp/updates.htm.

\textsuperscript{273} Other state and federal programs, however, provide funding for acquisition of habitat identified in plans as high priorities for reserves. See, e.g., Wildlife Conservation Board Approves Grants for Natural Community Conservation Plan Efforts in Southern California (Sept. 25, 2000) (describing six grants for the purchase of 1741.9 acres of habitat in San Diego and San Bernardino County and noting that California received $ 5.6 million in land acquisition funding under ESA § 6), at http://ceres.ca.gov/CRAN/NCCP/NCCP-release.html. The California Wildlife Conservation Board, operating under Cal. Fish and Game Code § 1320-1324, has approved funding for 25 land acquisitions in the "NCCP planning areas of Southern California" totaling more than 11,700 acres. California Department of Fish and Game, NCCP Update, at http://www.dfg.ca.gov/nccp/updates.htm (last modified Nov. 7, 2000). Local governments also fund habitat acquisition. See, e.g., U.S. Fish and Wildlife Service, California Department of Fish and Game, and County of San Diego, Implementing Agreement 33-34 (Mar. 17, 1998), at http://www.co.san-diego.ca.us/cnty/cntydepts/landuse/planning/mscp/index.html.

\textsuperscript{274} CAL. FISH AND GAME CODE § 2825(a) (West 1999).


\textsuperscript{277} Conservation Guidelines, supra note 275, at Introduction; Welner supra note 252, at 344.

\textsuperscript{278} Southern California CSS NCCP General Process Guidelines, supra note 264, at Section 1.1 (citing the December 1991 MOU).
conform to the NCCP. The NCCP, in turn, authorizes the California Department of Game and Fish to prepare "nonregulatory guidelines for the development and implementation of natural community conservation plans." 279

The CSS Conservation Guidelines envision a patchwork of subregional NCCPs that will form "a system of interconnected reserves designed to: 1) promote biological diversity, 2) provide for high likelihoods for persistence of target species [including the gnatcatcher] . . . , and 3) provide for no net loss of habitat value . . . taking into account management and enhancement." 280

The CSS Conservation Guidelines build on the work of the NCCP Scientific Review Panel (SRP), composed of prominent conservation biologists, which the California Department of Fish and Game and the FWS commissioned to review available scientific information. 281

The objective of the Conservation Guidelines is to facilitate the production of "viable, long-term conservation plans and reserve designs." 282

The Conservation Guidelines describe what type of biological information each plan must contain so that it can be evaluated, approved, and implemented. 283

Not surprisingly for a set of guidelines based on the recommendations of conservation biologists, the CSS Conservation Guidelines promote (ecosystem-wide) adaptive management in subregional plans. The Guidelines envision that management of reserves and restoration of habitat will play an important role in NCCP plans. The Conservation Guidelines employ the reserve design principles of conservation biology. 284

These principles recommend that plans conserve target species throughout the subregion, establish larger rather than smaller reserves, designate re-

279. CAL. FISH AND GAME CODE §2825(a) (West 1999); see supra note 274 and accompanying text.
280. Conservation Guidelines, supra note 275, at Section 3(d).
281. How the NCCP Pilot Program Began, available at http://ceres.ca.gov/CRA/NCCP/nccp_pilot_program.html (last visited October 2000); Welner, supra note 252, at 344; Conservation Guidelines, supra note 29, at Introduction. Though the SRP completed its task in 1993, the California Department of Fish and Game continued to consult with members of the panel. How the NCCP Pilot Program Began, supra note 281.
282. How the NCCP Pilot Program Began, supra note 281.
283. Id.
serve areas close together, keep habitat contiguous, link reserves with corridors, make reserves diverse, and protect reserves from encroachment. 285

The Conservation Guidelines, however, provide no precise benchmarks for measuring the adequacy of plans. Instead, adaptive management will monitor and adjust exotic species control, recreational use, fire, restoration unit size, vegetative responses to soil conditions, and other key factors. 286 While this flexibility to respond to the discovered effects of development and conservation activity promotes continuous improvement, it leaves subregions with few clear criteria for determining whether the initial level of conservation in plans is adequate. 287 Other than general prescriptions for reserve design, 288 the Guidelines will permit plans to make their own trade-offs.

The CSS Process Guidelines shape the land use planning of the ten to fifteen subregions in the CSS region, and serve as models for other NCCP regions in the state. 289 The important steps in the subregional planning process are enrollment, establishment of a planning agreement, collaborative development of a detailed final subregional plan, and approval of an implementing agreement. 290

The NCCP process begins when a local jurisdiction, such as a city or county, enters into an enrollment agreement with the California Department of Fish and Game. 291 The enrollment agreement commits the lead local agencies to follow the state Guidelines. By 1995, 40 major landowners and 30 local governments had agreed to participate in the NCCP program, including "[v]irtually all of the eligible habitat in both Orange and San Diego Counties . . ." 292 After enrollment, the local jurisdictions, landowners, the Department of Fish and Game, and the FWS enter

285. Conservation Guidelines, supra note 275, at Section 3(d) (Conservation Planning Guidance: Application to subregional planning).
286. Id. at Section 3(c) (Management and Restoration).
287. The only precise standards for habitat loss apply to interim planning, discussed infra notes 299-310, and accompanying text.
288. Conservation Guidelines, supra note 275, at Section 3(c) (Management and Restoration) and Section 5(c) (Evaluation Methods).
290. Southern California CSS NCCP Process Guidelines, supra note 264, at Summary.
291. Id. at Section 3.3 (Program Enrollment).
292. Welner, supra note 252, at 345.
into a planning agreement. The planning agreement sets forth the basic parameters for applying the Guidelines to the subregion. The agreement includes basic information such as the planning boundary and the species, jurisdictions, permits, landowners, and local planning and public participation requirements in the subregion. The planning agreement must also include a timetable. The Process Guidelines encourage local governments to adapt the NCCP process to their existing procedures “relating to plan preparation, public participation, public hearing, and environmental review.” The Guidelines, however, encourage subregions to set out enhanced, collaborative public participation processes in the planning agreement. This collaboration occurs under the auspices of the lead local jurisdiction or agency. Recent amendments to the NCCP Act also require the planning agreement to establish a process for independent scientific input and analysis in plan development.

Development in a subregion engaged in the NCCP process need not halt. The 4(d) rule allows a subregion actively engaged in the NCCP process to avoid Section 9 liability for incidental takes so long as the taking activity abides by the Guidelines. The Conservation Guidelines require that not more than five percent of primarily low quality coastal sage scrub habitat be lost during interim planning. The Guidelines also require that short-term losses of habitat be minimized and long-term conservation planning options not be foreclosed by interim takes. Once a subregion reaches the five percent limit on the loss of habitat, no 4(d) shield to Section 9 liability is available until the state and FWS approve a final NCCP plan. This quantitative limit on habitat loss

294. *Id.*
295. *Id.* at Section 5 (Subregional Planning).
296. *Id.*
297. S.B. 1679 § 2, 1999-2000 Session (Cal.) (codified at *CAL. FISH AND GAME CODE* § 2811 (West 2000)).
298. 50 C.F.R. § 17.41(b)(3).
299. *Conservation Guidelines, supra* note 275, at Section 3(a) (The Interim Strategy). This interim planning limit is commonly known as the “5% limit.” See also Welner, *supra* note 252, at 344.
300. *Conservation Guidelines, supra* note 275, at Section 3(a) (The Interim Strategy), and Section 5(a) (Ranking Land for Interim Protection); Special Rule Concerning take of the Threatened Coastal California Gnatcatcher, 58 Fed. Reg. 65,088, 65,090 (Dec. 10, 1993).
301. Special Rule Concerning Take of Threatened Coastal California Gnatcatcher, 58 Fed.
and the mandate to minimize are the strongest criteria in the Conservation Guidelines. The actual, final subregional plans may deviate from these interim limits.

Once a subregion has developed a draft plan, it submits the plan along with the necessary NEPA and California state environmental impact review documents to the Department of Fish and Game and the FWS. The public has the opportunity to comment on the draft.302 The state and federal agencies then review the draft plan by applying the Conservation Guidelines, as well as applicable statutory criteria.303 The Process Guidelines specify that the FWS will apply the criteria for issuance of an ESA incidental take permit in evaluating the draft plan.304 As we have noted earlier, the FWS has interpreted these criteria to require no jeopardy, not necessarily recovery.305 Along with the absence of strong substantive recovery criteria and the lack of firm time lines for conservation benchmarks in the CSS Conservation Guidelines, this makes federal review of the subregional plans weak. Indeed, the Process Guidelines anticipate that ongoing involvement of the FWS in the planning process will lead to acceptance of the draft that results.306 The lack of specific substantive criteria, addressing the biological needs of the gnatcatcher, for FWS approval of local plans enjoying the Section 4(d) shield from the otherwise applicable take prohibitions is the single greatest problem with the gnatcatcher experiment.

Based on the public and agency response to the draft plan, the subregional lead agency prepares a final NCCP plan. The Department of Fish and Game and the FWS officially approve the plan through an implementing agreement with the local lead

Reg. at 65,090.
302. CAL. FISH AND GAME CODE § 2815 (West 1999).
303. Southern California CSS NCCP Process Guidelines, supra note 264, at Section 5.3 (Public and Agency Review).
304. Id.
305. See supra notes 124–131, and accompanying text. This interpretation creates a gap between what the criteria require (no jeopardy) and what the Act requires of the 4(d) rule (recovery).
306. Southern California CSS NCCP Process Guidelines, supra note 264, at Summary (Subregional Planning Process) and Section 5.3 (Public and Agency Review). In the unlikely event that the Department of Fish and Game and the FWS cannot accept the draft NCCP, the agencies have 60 days to provide a report containing the reasons for rejecting the plan and suggested modifications that would result in its acceptance. Southern California CSS NCCP Process Guidelines, supra note 264, at Section 5.3 (Public and Agency Review).
The implementing agreement replaces the interim, five percent standard with the terms of the final NCCP plan. The FWS approval also triggers coverage of the NCCP plan by the 4(d) rule exception to the take prohibition for the gnatcatcher in the area. The implementing agreement, which binds the parties with enforceable assurances of implementation and funding commitments, should contain all the terms and conditions on activities authorized under the NCCP subregional plan. These include periodic reporting to demonstrate compliance and to facilitate monitoring of the Guidelines by the agencies and adaptive management by the subregions. The implementing agreement must provide procedures for amending or suspending the plan.

c. The San Diego Multiple Species Conservation Program

One of the earliest and largest subregional applications of the CSS regional guidelines is the San Diego Multiple Species Conservation Program (MSCP). Approved in December 1996 by the California Department of Fish and Game and the FWS, the subregional plan encompasses 582,000 acres in southwestern San Diego County. The Secretary of the Interior lauded the local governments in the subregion for developing the complex MSCP under conditions of tremendous development pressure. The MSCP subdivides the large subregion into eleven planning subareas to implement the broad subregional program. Although we are primarily concerned with the relationship between the local plans and conservation of gnatcatcher habitat, the MSCP subarea plans

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311. California Department of Fish & Game, NCCP Update, at http://www.dfg.ca.gov/nccp/updates.htm (last modified Oct. 5, 2001). The MSCP establishes a 172,000 acre preserve in this subregion. Id.

312. Department of the Interior, Fish and Wildlife Service Press Release, Interior Secretary Praises 'Monumental Conservation Achievement' in San Diego County (Oct. 23, 1997), at http://www.fws.gov/%7Er9extaff/pr/sdmscpcgo.html (asserting that the MSCP is a blueprint for the future that "balances the conservation of ecologically-sensitive areas with the need to accommodate long-term economic development") (last visited Nov. 28, 2001).

seek to conserve all of the species and ecosystems in the area. So, gnatcatcher recovery, though a spur to NCCP plan development, is but one component of a broader system of reserves and modifications to development.\(^{314}\)

This subsection focuses on the County of San Diego MSCP Subarea Plan, which implements the MSCP within the unincorporated areas under the jurisdiction of San Diego County.\(^{315}\) The County Subarea Plan, approved by the state and federal agencies in March 1998,\(^{316}\) is significant because it is the largest subarea plan currently in force and it contains a significant amount of coastal sage scrub habitat.\(^{317}\) Moreover, because the undeveloped areas in the MSCP subregion are disproportionately under the planning jurisdiction of the County of San Diego, most of the habitat targeted for reserves occurs in the unincorporated areas of the county.\(^{318}\) In the Russian-doll world of NCCP planning, this subarea plan is itself divided into three geographic segments.\(^{319}\) For the purposes of this article, however, we will consider generally how the County Subarea Plan protects gnatcatcher habitat from adverse impacts of development.

After surveying the 73% of the County Subarea that provides habitat for native species,\(^{320}\) the county established numerical goals for conservation. For instance, the plan sets the gnatcatcher

\(^{314}\) The MSCP and the San Diego County Subarea Plan cover 85 species of concern. California Department of Fish & Game, NCCP Update, at http://www.dfg.ca.gov/nccp/updates.htm (last modified Oct. 5, 2001); County of San Diego, Multiple Species Conservation Program Subarea Plan, (Oct. 22, 1997), at http://www.co.san-diego.ca.us/cnty/cntydepts/landuse/planning/mscp/index.html [hereinafter MSCP Subarea Plan]. Julia Levin notes that many large-scale habitat conservation plans in California are being used as “de facto land use plans, either wholly supplanting comprehensive land use planning updates or superseding many of the decisions that should be made during those updates.” JULIA A. LEVIN, HABITAT CONSERVATION PLANS (HCPs) AND LAND USE PLANNING IN CALIFORNIA 4 & 23 (June 2000) (unpublished report for Union of Concerned Scientists, on file with Columbia Journal of Environmental Law).

\(^{315}\) MSCP Subarea Plan, supra note 314, at 1-1.

\(^{316}\) U.S. Fish and Wildlife Service, California Department of Fish and Game, & County of San Diego, supra note 273.

\(^{317}\) California Department of Fish & Game, supra note 313. Coastal sage scrub habitat composes 28 percent of the land in the County Subarea. MSCP Subarea Plan, supra note 314, at 1-10.

\(^{318}\) MSCP Subarea Plan, supra note 314, at 1-17.

\(^{319}\) Id. at 1-1. To review the terminology, the NCCP divisions are, from larger areas to smaller: region (CSS), subregion (MSCP), subarea (County of San Diego), and segment (area within the jurisdiction of the county, such as Lake Hodges).

\(^{320}\) Id. at 1-10. The remaining 27% of the Subarea is “disturbed, developed, or agricultural land” having little habitat value. Id.
goal of protecting 95% of the existing 937 occurrences of the bird. This constitutes about half of the gnatcatchers in the whole MSCP subregion. Reflecting the NCCP Conservation Guidelines, the subarea plan concentrates on protecting habitat reserves and linkages between the reserves as the principal means of achieving its goals. Much of the planning effort, therefore, is designation of which areas will be dedicated for preservation and which for development. The county maintains records that show the location, habitat types, and acres of habitat of the areas earmarked for preservation. The plan thus provides landowners with certainty in what activities can be conducted without ESA liability and which areas are amenable for further development.

The plan limits permissible uses within preserves to ensure the viability of habitat. Generally prohibited in land designated as preserve is: grading, excavation, filling, clearing, construction of buildings or structures, driving, dumping, and planting. In some cases, a public entity will purchase land in the preserve zone, but in other situations the public will acquire an open space or conservation easement or covenant.

The County Subarea Plan also establishes guidelines for uses in areas adjacent to preserves. These buffer zones should be compatible with the preserve and include restrictions on landscaping, structures, lighting, and fencing. The plan identifies a number of open space uses that are compatible with adjacent preserves.

For development that adversely impacts sensitive habitats, the plan requires mitigation. The County established extensive mitigation procedures and offsite mitigation banking through an or-

321. Id. at 1-16.
322. Id.
323. Id. at 1-18.
324. Id.
325. Id. at 1-20.
326. MSCP Subarea Plan, supra note 314, at 1-29. Though the county “has failed to set aside the $3 million per year that it committed to in the MSCP,” Levin, supra note 314, at 29, it has been paying comparable sums for preserve acquisition through its general fund. E-mail from Dan Silver, Coordinator, Endangered Habitats League (Feb. 25, 2001) (on file with author). Levin also reports that transportation decisions made subsequent to the plan “seriously undermine the conservation measures and protected areas contained in those plans.” Levin, supra note 314 at 29. If the county has failed to abide by the terms of the plan, the Service may need to revoke the plan’s authorization. We explore this issue infra note 482 and accompanying text.
327. MSCP Subarea Plan, supra note 314, at 1-26-1-27.
328. Id.
The 1997 mitigation ordinance, like the County Subarea Plan itself, reflects the NCCP Conservation Guidance perspective of conservation biology. The ordinance sets out design criteria for preserves, linkages, and corridors. It provides standards for avoiding impacts to preserves, and mitigation requirements that the county will impose for all projects requiring a discretionary permit. Some of the ordinance's requirements are numerically specific, such as the limitation on encroachment on sensitive species, which "shall not exceed 20% of the population on site." Projects must be designed to avoid and minimize disturbance to habitat before employing specific mitigation measures. The ordinance also establishes specific mitigation ratios where impacted land is offset on a mitigation site. The mitigation ordinance is a good example of a local government providing substantive habitat protection because of the cooperative federalism established in a 4(d) rule.

Also reflecting the NCCP Guidelines, the implementing agreement for the Subarea Plan provides for adaptive preserve management through monitoring, reporting, and adjusting criteria. The monitoring and reporting provisions of the agreement are extensive and include: continual habitat acreage accounting, an annual report and public workshop on habitat status, an annual implementation meeting (which may require "altering management activities or redirecting mitigation"), reports, hearings, and audits. In addition to specifying the acreage of preserve land the county is to establish, the implementation agreement also binds the county to prepare management plans and area-specific management directives to ensure preservation.

Because the FWS applies the ESA Section 10 incidental take
permit criteria in approving plans that will be exempted from the take requirements pursuant to the 4(d) rule, it regards the implementation agreement as the basis for issuance of an incidental take permit. In addition to applying the lower, "no jeopardy" standard to the county's program rather than the conservation standard of Section 4(d), the FWS also incorporates other attributes of the ESA Section 10 permit process. For instance, the implementing agreement establishes a standard of "extraordinary (or, unforeseen) circumstances" that the Service must demonstrate by clear and convincing data before it may require additional conservation measures. This high burden of reopening the agreement contrasts with the federal government's usual retained authority to require additional environmental controls when circumstances indicate that permits or programs are failing to meet established goals.

2. The Puget Sound Salmon Listings

The NCCP program is an intermediate step on the road to more comprehensive species protection under Section 4(d). Though an innovation in employing cooperative federalism, the HCP orientation of the gnatcatcher 4(d) rule limits its ability to promote recovery. The most important proving ground for the potential of 4(d) rules will be in the Pacific Northwest, where the NMFS has listed as threatened several runs of anadromous fish. It is here that local plans addressing habitat must contribute to recovery in order to qualify under a 4(d) rule as a limitation on the take prohibition. This section examines the efforts in Washington State to retain local control over land use in areas where development affects salmon habitat.

The NMFS uses the term "evolutionarily significant units" ("ESUs") to define the distinct population segments of anadromous fish species it protects under the ESA. These separate ESUs are reproductively isolated because they "run," or breed, at different times of the year and in different watersheds. In recent

337. Id. at 13-14. See supra notes 138-140 and accompanying text for a description of the "no surprises" policy for Section 10(a) permits.


years, the NMFS has promulgated a number of threatened ESU listings for anadromous fish. However, the most important listing for using cooperative federalism through a 4(d) rule occurred in March, 1999, when the NMFS designated as threatened several ESUs that occur in the Puget Sound and near other urban centers. This part focuses on the Puget Sound chinook salmon ESU, included in the March 1999 listing, which affects millions of people in the Seattle, Bellevue, and Takoma area. If incorporating habitat conservation into existing local land use controls will work anywhere, it should work in this urban region, where regulation of development is relatively familiar.

Subsection (a) of this part describes the 4(d) rule that NMFS

340. See Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead, 62 Fed. Reg. 43,937 (Aug. 18, 1997) (to be codified at 50 C.F.R. pts. 222 and 227) (listing the Snake River Basin, Central California Coast, and South/Central California Coast steelhead as threatened); Threatened Status for Two ESUs of Steelhead in Washington, Oregon, and California, 63 Fed. Reg. 13,347 (Mar. 19, 1998) (to be codified at 50 C.F.R. pt. 227) (listing the Lower Columbia River and Central Valley, California steelhead); Threatened Status for the Oregon Coast Evolutionary Significant Unit of Coho Salmon, 63 Fed. Reg. 42,587 (Aug. 10, 1998) (to be codified at 50 C.F.R. pt. 227). A recent, startling decision of a federal district court overturned the August 1998 listing of the coho salmon. Alsea Valley Alliance v. Evans, 161 F. Supp. 2d 1154 (D. Or. 2001). The court found the Service's policy to exclude hatchery fish from the populations of the ESUs invalid under the ESA listing provision that prohibits distinctions below the level of distinct population segments. Id. at 1162. If this holding stands on appeal, it will call into question many more NMFS listing decisions. Unless the NMFS can show that hatchery-bred fish are a separate, distinct population segment, and therefore substantially reproductively isolated from natural runs under its regulatory standard, then it may not exclude the hatchery fish from the populations considered for listing. Id.


promulgated in 2000 for 14 listed ESUs. The 4(d) rule establishes
the framework for federal approval of state programs that will
avoid Section 9 liability and conserve habitat. Then, Subsection
(b) describes the patchwork of programs that Washington has cre-
ated to respond to the decline in anadromous fish populations.
Subsection (c) focuses on the plan by jurisdictions in the Puget
Sound region to qualify under the 4(d) rule in order to avoid li-
ability and recover the Puget Sound chinook salmon.

a. The West Coast Salmon 4(d) Rule

The rule listing the Puget Sound chinook salmon ESU as threat-
ened described a wide range of factors that contribute to the de-
cline in the fish population. The species suffers habitat degrada-
tion from dams, forest practices, and agricultural activities in a
manner similar to other listed salmon. However, it is particu-
larly affected by urban development in the region. The final rule
states that "[i]ncreasing percentages of land in the Puget Sound
area are composed of impermeable surfaces, and the reductions in
habitat quality due to point- and non-point source pollutants have
been widespread.... [R]ecent research has shown that juvenile
chinook salmon from a contaminated estuary in Puget Sound are
more susceptible to disease pathogens than are juvenile chinook
salmon from a non-urban estuary." The urban setting may cre-
ate special challenges for recovering Puget Sound chinook, but it
also provides a basis for successful application of a comprehen-
sive conservation plan under ESA Section 4(d).

The NMFS promulgated the final 4(d) Rule for fourteen listed
ESUs of salmon and steelhead in the Federal Register on July 10,
2000. In its March, 1999, listing of threatened salmon ESUs, the
NMFS had promised that it would issue a 4(d) rule. At least
one regional association of local governments eagerly proceeded
with a conservation plan (the Puget Sound Tri-County Initiative)
and was ready to submit it for approval on June 21, 2000, the day
after the NMFS announced its final rule but more than two weeks
before promulgation in the Federal Register. This readiness to

345. Id. at 14,319.
346. Final Rule Governing Take of 14 Threatened Salmon and Steelhead Evolutionary
347. Threatened Status for Three Chinook Salmon ESUs, 64 Fed. Reg. at 14,325.
348. Susan Gordon, Saving Salmon Called Job for All: Federal Protection Plan Due, but Offi-
engage in a cooperative relationship with the NMFS stems from the region's interest in sustaining development through expanding and improving existing land use controls and incentives.

The final 4(d) rule generally extends to the threatened salmon ESUs the same prohibitions on take that apply to endangered animals. However, for those activities that the NMFS certifies as contributing to recovery under a number of categorical limitations of the general rule, there will be no Section 9 liability. The NMFS calls these categorical exceptions "limits on the take prohibitions" to distinguish them from binding, proscriptive regulations. The rule emphasizes that an activity which fails to fall within a limit does not necessarily violate the ESA. Instead, it means that the activity is subject to the general prohibition on take and may give rise to direct or indirect liability. The federal rule does not compel any jurisdiction to seek approval of a plan or program under the 4(d) rule. Still, the incentive to gain NMFS approval under the 4(d) rule is great because it protects from liability both the governmental unit and the private entities proceeding in compliance with the local program. Private developers, for instance, need not negotiate incidental take permits for habitat disturbing activities affecting listed salmon if the development is covered by a local program approved under the 4(d) rule.

The 4(d) rule creates thirteen categories of limitations to the take prohibitions. Some of the limitations are very narrowly drawn to cover activities complying with particular programs the NMFS has already approved or has nearly approved. These programs


350. Id. at 42,423.

351. 50 C.F.R. § 223.203 (2001). The 13 categories of limits to the take prohibition are: (1) ESA permits already granted under Section 7 or Section 10, (2) ongoing scientific research by state fishery agencies, (3) rescue and salvage actions, (4) fishery management, (5) artificial propagation, (6) Joint Tribal/State Plans Developed under the United States v. Washington or United States v. Oregon Settlement Processes, (7) scientific research, particularly by state fishery management agencies, (8) certain habitat restoration activities, (9) water diversion screening operated according to the Rule, (10) routine road maintenance conforming to ODOT's approved plan or others approved by NMFS, (11) Portland Park's Integrated Pest Management, (12) forest management in Washington that conforms to certain guidelines that must be adopted by Washington's Forest Practices Board, and (13) Municipal, Residential, Commercial, and Industrial (MRCI) development and redevelopment that must be developed according to guidelines in the Rule.
include the Oregon Department of Transportation's road maintenance plan,\textsuperscript{352} the City of Portland Parks and Recreation Department's pest management program,\textsuperscript{353} and the Washington forest practices control program.\textsuperscript{354} Other limitations apply to fairly narrow categories of activities that are carefully monitored, such as scientific research, fisheries management and habitat restoration.\textsuperscript{355}

The most important category for a limitation on take is municipal, residential, commercial and industrial (MRCI) development activities. Most urban development control programs, such as the Tri-County Initiative,\textsuperscript{356} will fall under this limitation. However, plans are not restricted to receiving limits under only one category. For instance, comprehensive land use plans will likely include habitat restoration and may seek partial approval under that category.\textsuperscript{357}

The NMFS intends the MRCI category to protect the threatened salmon ESUs, such as the Puget Sound chinook, that reside in urban areas while avoiding delays, multiple permits, and fragmented conservation efforts that can occur under the general Section 9 take prohibitions. In order for MRCI development activities to avoid the general take prohibition, they must occur pursuant to an ordinance or governmental plan that the NMFS determines adequately conserves the ESU.\textsuperscript{358} The NMFS will make this determination by evaluating twelve considerations that judge the extent to which a proposed ordinance, plan, or program:

1. ensures that development will avoid inappropriate areas such as unstable slopes, wetlands, areas of high habitat value, and similarly constrained sites;
2. prevents stormwater discharge impacts on water quality and quantity and stream flow patterns in the watershed—including peak and base flows in perennial streams;

\textsuperscript{352} Id. § 223.203(b)(10) (the Transportation Maintenance Management System Water Quality and Habitat Guide).
\textsuperscript{353} Id. § 223.203(b)(11).
\textsuperscript{354} Id. § 223.203(b)(13) (the Forest and Fish Report).
\textsuperscript{355} Id. §§ 223.203(b)(2), (4), (5), (6), (7).
\textsuperscript{356} See infra notes 431–446 and accompanying text.
\textsuperscript{357} The Tri-County Plan is a good example—it contains sections on road maintenance and other land use activities that are likely to fall under the auspices of development, and also contains a section on habitat planning.
\textsuperscript{358} Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. At 42, 480 (codified at 50 C.F.R. § 223.203(b)(12)(i) (2001)).
3. protects riparian areas well enough to attain or maintain properly functioning conditions (PFC) around all rivers, estuaries, streams, lakes, deepwater habitats, and intermittent streams, and offers compensatory mitigation, where necessary, to offset unavoidable damage to PFC in riparian management areas;

4. avoids stream crossings (whether by roads, utilities, or other linear development) wherever possible and, where crossings must be provided, minimizes impacts;

5. protects historic stream meander patterns and channel migration zones and avoids hardening stream banks and shorelines;

6. protects wetlands and wetland function, including isolated wetlands;

7. preserves the hydrologic capacity of waters to pass peak flows;

8. includes adequate provisions for landscaping with native vegetation to reduce the need for watering and application of herbicides, pesticides, and fertilizer;

9. includes provisions to prevent erosion and sediment run-off during construction;

10. ensures that water supply demands can be met without impacting flows needed by the ESUs and that any new water diversions are positioned and screened in a way that prevents injury or death of salmonids;

11. provides mechanisms for monitoring, enforcement, funding, reporting, and implementation, and periodic (at intervals not to exceed five years) evaluation; and

12. complies with all other state and Federal environmental and natural resource laws and permits.\footnote{359}{Id. § 223.203(b)(12)(i).}

In addition to the twelve substantive considerations, the 4(d) rule also specifies special procedures for approval and maintenance of an MRCI development program. The NMFS must publish notice in the Federal Register of consideration of an MRCI development program for approval for a limit on take prohibitions and allow at least thirty days for public comment.\footnote{360}{Id. § 223.203(b)(12)(iv).} Local governments operating approved MRCI development programs must
submit annual reports to the NMFS.\textsuperscript{361} The reports must describe implementation and effectiveness of the programs.\textsuperscript{362} This ongoing evaluation will enable the NMFS periodically to review the program to ensure it is providing for conservation of the ESUs.\textsuperscript{363} The NMFS may identify changes needed to support conservation goals. Local governments then have up to one year to make the changes before the NMFS promulgates an announcement of its intention to withdraw approval from the program.\textsuperscript{364}

This monitoring and oversight of the MRCI development programs approved for a limit on the take prohibition echoes a broader theme of the 4(d) rule to track both implementation of the programs approved and the terms of the 4(d) rule itself in order to adapt to new information and changed circumstances.\textsuperscript{365} The scientific standard of attaining the "properly functioning conditions" (PFC) is the basis in the MRCI development limit on take, and in the other parts of the 4(d) rule, for measuring progress toward ESU recovery. The "NMFS defines PFC as the sustained presence of [a watershed's] natural habitat-forming processes that are necessary for the long-term survival of salmonids through the full range of environmental variation."\textsuperscript{366} The biological processes of

\textsuperscript{361} Id. § 223.203(b)(12)(ii).

\textsuperscript{362} Id.

\textsuperscript{363} Id. § 223.203(b)(12)(iii). Though the first sentence of 50 C.F.R. § 223.203(b)(12)(iii) could be read to focus on the activities approved under a program rather than the program itself, the overall concern of this part of the 4(d) rule is programmatic. Furthermore, the commentary in the final Federal Register promulgation stresses the importance of monitoring and reviewing programs. See, e.g., Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. at 42,426 (comment and response 9); Id. at 42,459-60 (comment and response 245). Still, the NMFS states that it does plan to review each MRCI project's monitoring plan, though it adds the seemingly contradictory caveat that it will not have a role in individual project reviews. Id. at 42,457-58 (comment and response 231). Given the Service's limited resources, it is likely that the individual project plan review, even of monitoring alone, will not receive much attention. See Id. at 42,459 (comment and response 242). This is appropriate given the cooperative federalism framework that should focus NMFS oversight on the local jurisdictions' implementation and monitoring rather than individual projects. As in the pollution control setting, it will be the exception rather than the rule for the federal agency to intervene in a particular state/local permit proceeding.


\textsuperscript{365} See, e.g., Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. at 42,424 ("This final rule may be amended to add new limits on the take prohibitions, or to amend or delete limits as circumstances warrant."); Id. at 42,426 (comment and response 9); Id. at 42,459-60 (comment and response 245).

spawning, breeding, rearing, feeding, migrating, and sheltering are among the essential functions habitat supports.\textsuperscript{367} The processes monitored to evaluate risks to PFC include vegetation growth, sediment load transport, and rainfall runoff patterns.\textsuperscript{368} For the purposes of this article, the details of how the NMFS can actually measure the PFC criteria\textsuperscript{369} is less important than the existence of a habitat-based recovery standard to ensure continued progress toward conservation under the 4(d) rule. This is an example of the NMFS applying the principle of adaptive management to comprehensive conservation.

However, more important (and more open to question) is whether NMFS will use the PFC framework to identify risks and insist on risk reductions. Though it is difficult to predict how aggressively the Service will use its discretion, the 4(d) rule does provide enough supplemental material to permit citizen groups to threaten enforcement of the PFC limitation if the NMFS is not vigilant. We address the problem of lax agency exercise of discretion at V(B)(5).

Still, critics have challenged the validity of the 4(d) rule on the basis that it lacks clear and enforceable standards. Specifically, the Washington Environmental Council and a coalition of other environmental organizations charge that the twelve MRCI development considerations are vague and cannot ensure that only plans contributing to recovery receive NMFS approval.\textsuperscript{370} The environmental groups are correct to press for more specific, measurable criteria for approval of limitations on take. It would provide greater certainty to local jurisdictions as well as to environmentalists attempting to predict how NMFS will exercise its discretion. The problem, however, is that more specific, measurable criteria may not be possible given both our ignorance of the precise conditions for salmon recovery and the site-specific nature of the harm

\textsuperscript{367} Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. at 42,431.

\textsuperscript{368} Id.

\textsuperscript{369} For these details, see Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. at 42,431; National Marine Fisheries Service, A Citizen's Guide to the 4(d) Rule for Threatened Salmon and Steelhead on the West Coast 25-26 (June 20, 2000), at http://www.nwr.noaa.gov/1salmon/salmones/4d/docs/citguide.htm. In summary, NMFS employs an "analytic methodology" matrix to determine the risks to PFC from an activity.

\textsuperscript{370} Washington Env'tl Council v. Nat'l Marine Fisheries Serv., No. C00-1547R (W.D. Wash. Sept. 12, 2000). In addition to the MRCI limitation, the lawsuit also challenges the 4(d) limit on take for the Washington forest practices control program.
done through environmental degradation. Moreover, the third consideration, employing the properly functioning conditions standard, may offer an objective, scientific basis for evaluating the effects of MRCI development programs and requiring mitigation. The plaintiffs argue that the NMFS should, in the 4(d) rule, establish minimum sizes of riparian buffers and identify unstable slopes to avoid.371 But, these are the kind of the site-specific applications best left to local jurisdictions to propose and support based on the broader standards in the 4(d) rule. As long as the local jurisdiction has the burden of showing how its development limits meet the twelve considerations, it should have the flexibility to set its own numerical limitations.

Despite the likelihood that the 4(d) rule’s MRCI development limit will not run afoul of the Administrative Procedure Act’s arbitrary and capricious standard of review in the pending litigation,372 the rule could be improved. The most important improvement would be to transform the twelve considerations that the Service, under the existing 4(d) rule, must merely consider in approving plans into binding criteria. The current rule appears to allow the NMFS to approve plans that fail to meet one or more of the considerations as long as the agency takes into account the situation in preparing its administrative record.373 A better rule would limit the NMFS’ discretion to approve only programs that fulfill twelve listed conditions.

In addition to the requirements of the 4(d) rule, the NMFS also expressed a number of preferences. For instance, the 4(d) rule seeks to encourage area-wide comprehensive planning. Thus, the NMFS stated in its commentary to the final 4(d) rule that it will give greater priority to comprehensive plans rather than individual ordinances in order to promote greater efficiency and to protect the full suite of essential ecological functions.374 Also, the NMFS expects local governments that submit plans, programs, or ordinances for limits on the take prohibition under the 4(d) rule to develop some basic information to help the Service and citizens evaluate the application. The Citizen’s Guide that the

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371. *Id.* at III(C)(1).
NMFS published as a companion to the 4(d) rule suggests that an application for a limit on take contain the following features:

1. Descriptions of the activity or program being proposed, the geographic area within which the proposed action/program will apply or be carried out, and the jurisdiction or entity responsible for overseeing the action/program.

2. A description of the listed species and habitat that will be affected by the action. This information should include fish distribution and abundance in the affected area and a description of the type, quantity, and quality of habitat in the affected area.

3. A description of the environmental baseline. This information should describe existing habitat conditions in terms of water quality, access, riparian areas, stream channels, flow, and watershed health indicators such as total impervious area and any existing high quality habitat areas.

4. A description of the anticipated short-term and long-term impacts the action is expected to have on the species (including all life-cycle stages) and its habitat. This description should include both positive and negative impacts and describe how any adverse impacts will be avoided, mitigated, or minimized.

5. A discussion of the likelihood that the program or action will be implemented as described. Some questions that would need to be answered are: What commitment has been made to carry out the action or program? Are the legal authorities needed to carry out the program in place? Is implementation funding available and adequate? Is staffing available and adequate? What is the schedule for implementation? If the program is currently being implemented, what is its record of implementation and effectiveness to date?

6. A program for monitoring both the action’s implementation and effectiveness. It should include a schedule for conducting monitoring and submitting reports.

7. A method for using monitoring information to change actions when needed—adaptive management.375

Finally, the Citizen’s Guide also offers examples of the kinds of

activities that would likely injure threatened salmonids.\textsuperscript{376} The guidance is not intended to be an all-inclusive list of those actions that will definitely cause take, and the determination of take is necessarily a site-specific analysis.\textsuperscript{377} However, it does offer regulated entities and private parties, as well as governmental jurisdictions, some help in determining which of their activities may give rise to liability in the absence of a take limitation under the 4(d) rule. Such activities include:

1. constructing or maintaining structures like culverts, berms, or dams that eliminate or impede a listed species' ability to migrate or gain access to habitat;
2. discharging pollutants into a listed species' habitat; removing, poisoning, or contaminating plants, fish, wildlife, or other biota that the listed species requires for feeding, sheltering, or other essential behavioral patterns;
3. removing or altering rocks, soil, gravel, vegetation or other physical structures that are essential to the integrity and function of a listed species' habitat;
4. constructing, maintaining, or using inadequate bridges, roads, or trails on stream banks or unstable hill slopes adjacent to or above a listed species' habitat; and
5. conducting timber harvest, grazing, mining, earth-moving, or other operations that substantially increase the amount of sediment going into streams.\textsuperscript{378}

\textbf{b. The Washington Program for Salmon Conservation}

Like other states affected by the recent salmon listings, Washington hoped to avoid listing by initiating its own conservation efforts.\textsuperscript{379} However, compared to Oregon, which had a draft statewide salmon conservation plan by 1996, Washington was slow to respond to the growing concern over declining fish runs.\textsuperscript{380} And,

\textsuperscript{376} Id.
\textsuperscript{377} See Final Rule Governing Take of 14 Threatened Salmon and Steelhead ESUs, 65 Fed. Reg. at 42,436 (comment and response 77).
\textsuperscript{378} National Marine Fisheries Service, supra note 369, at 5-6.
even Oregon was unable to demonstrate that it had sufficiently removed the risks to salmon in order to preempt listing.\textsuperscript{381}

However, the NMFS indicated that Washington's preemptive conservation efforts played some role in the decision to list the West Coast salmonids as threatened rather than endangered.\textsuperscript{382} The final listing for the Puget Sound chinook stated that "[e]ven though existing conservation efforts and plans are not sufficient to preclude the need for listings at this time, they are nevertheless valuable for improving watershed health and restoring salmon populations."\textsuperscript{383} With this, the NMFS signaled its intent to prepare a 4(d) Rule that would likely include "well-developed and reliable [state] conservation plans" in the 4(d) limits on take.\textsuperscript{384}

Though the states would have preferred to avoid the listing decisions, they continued to pursue conservation programs to retain some control in the salmon management process. This subsection describes the patchwork of authorities that Washington has employed to begin to address salmonid conservation. The state-wide efforts support regional strategies, such as the Tri-County Initiative (discussed in the following subsection), primarily through guidance, technical support, and funding. The regional strategies, in turn, provide a framework for local governmental revisions of land use plans and ordinances.

The first significant state response to the NMFS consideration of

\textsuperscript{381} See Blumm & Corbin, \textit{supra} note 17, at 545-548.


\textsuperscript{384} \textit{Id.} at 14,326 stating: NMFS is encouraged by these significant efforts [referring to various conservation initiatives, including state efforts], which could provide all stakeholders with an approach to achieving the purposes of the ESA—protecting and restoring native fish populations and the ecosystems upon which they depend—that is less regulatory. NMFS will continue to encourage and support these initiatives as important components of recovery planning for chinook salmon and other salmonids.

listing Washington salmonids under the ESA occurred in 1997, when Governor Gary Locke and several state agency heads established the Joint Natural Resources Cabinet. The Cabinet, consisting of state agency leaders, a tribal representative, and other key decision-makers, provides an institutional framework to promote interagency communication. Though the Cabinet has broad jurisdiction over environmental issues, salmon conservation has been a primary concern.

By January 1998, the Cabinet had prepared a working-draft recovery strategy. Later in 1998, the Washington legislature enacted the Salmon Recovery Planning Act to help direct salmon conservation and recovery efforts. This legislation created a framework for salmon recovery that emphasizes habitat restoration. The Act also created the Governor's Salmon Recovery Office to work on the state recovery strategy.

In response to the final salmon listings in 1999, the legislature created the Salmon Recovery Funding Board to coordinate state funding for habitat projects. This statute endorsed the framework of "integrating local and regional recovery activities into a state-wide plan that can make the most effective use of provisions of federal laws allowing for a state lead in salmon recovery." Thus, state money is available as an additional incentive for local governments to participate in cooperative federal efforts under a 4(d) rule. The 1999 legislation also stressed monitoring and adaptive management. Though by this time the Joint Natural Resources Cabinet and the Governor's Salmon Recovery Office were in the process of finalizing the statewide recovery strategy, the 1999 Act contained guidelines for developing the statewide strategy. The amendments also required that, beginning in September 2000, the statewide recovery strategy be revised through a public

386. Id.
387. Development of the state salmon recovery effort required a larger and more broadly based group, the Government Council on Natural Resources. The Council includes representatives from the Cabinet, the legislature, tribes, cities, counties, and the federal government. Id.
391. Id. § 77.85.
involvement process. The Salmon Recovery Funding Board makes grants and loans for salmon habitat projects and other recovery activities from the amounts appropriated by the state legislature and Congress. It coordinates all the funds, be they state or federal monies funneled through the state, that are set aside for salmon habitat protection and restoration. It also develops procedures and criteria for the allocation of funds. Counties, cities, tribes, and other entities can join together to identify habitat restoration projects in their area that need funding and submit requests to the Board. The jurisdictional and other stakeholder entities designate a "lead entity" to coordinate the list of projects developed for that area. The lead entity establishes a committee consisting of various representatives from interested groups in the area that provides citizen input on the proposed salmon habitat projects. The committee compiles and sets priorities for habitat projects which it then submits to a state "technical review team." The technical review team assists the Salmon Recovery Funding Board in allocating money by ensuring that scientific principles are integrated into the Board's funding criteria and reviewing habitat projects to recommend for funding. The team also works in conjunction with an "independent science panel" composed of experts in salmon biology and management. The panel reviews the salmon recovery plans, but does not make policy decisions or habitat funding recommendations. With the technical review team, the panel also recommends: 1) standardized monitoring indicators and data quality guidelines for use by entities involved in habitat projects; and, 2) criteria for the systematic and periodic evaluation of moni-

392. Id. § 77.85.150. The statute does not specify how frequently revisions should occur.
394. WASH. REV. CODE § 77.85.050.1(a).
395. Id. § 77.85.050.1(b).
396. Id. § 77.85.050.3.
397. Id § 77.85.130.5
398. Id. § 77.85.040
399. Id. § 77.85.040.4.
toring to help enable the state to answer questions about the effectiveness of salmon recovery efforts.400

Some cooperative entities that might work on recovery projects already exist. To help the state achieve its watershed protection and development goals, including the development of a comprehensive state water program, Washington enacted the Watershed Resources Act of 1971.401 The Act enabled the Washington Department of Ecology to create Watershed Resource Inventory Areas ("WRIAs").402 Local governments and other stakeholders within the boundaries of the WRIA collaborate on watershed issues. These local entities are already accustomed to coordinating watershed planning activities. It is likely they will now also work together in coordinating salmon habitat projects. However, other multi-entity units (such as the Tri-County Partnership) may also be formed to develop habitat projects under the Salmon Recovery Funding Act.

In September 1999, meeting a deadline established in the 1999 amendments to the Salmon Recovery Funding Act, and after a draft, comment, and revision period, the Joint Natural Resources Cabinet and the Governor unveiled the final statewide recovery plan.403 The plan, entitled "Extinction is Not an Option," seeks to provide all the various stakeholders, public and private, with a framework and information necessary to make sound decisions about how they can contribute to salmon restoration.404 One of the plan's goals is to aid regional efforts to gain NMFS approval of programs under a 4(d) rule.405

The "Extinction is Not an Option" plan establishes a menu for conservation options consisting of four core elements, termed the

400. Id. § 77.85.040.5, .6.
401. Id. § 90.54.
402. Id. § 90.54; WASH. ADMIN. CODE § 173-500 (1983).
405. Washington Joint Natural Resources Cabinet, supra note 403 at 46 (establishing a goal to "identify actions, options or programmatic approaches that could lead to conservation of salmon and protection of state, local, and/or private actions from legal exposure under the ESA"), at http://www.governor.wa.gov/esa/strategy/strategy/roadmap.pdf.
“four H’s”—habitat, harvest, hatcheries, and hydropower. It provides guidance in land use law and policy, stormwater management, clean water, fish passage devices, and hatchery management. The plan also reviews tools, such as public education and permit streamlining, that state and local planners can use to help implement recovery.

The “Extinction is Not an Option” planners worked with state and federal officials to identify seven salmon recovery regions in the state. Although circumstances vary from region to region, each is required to recover salmon within its boundaries and to make decisions about what needs to be done in the area. To achieve recovery objectives, regional salmon recovery plans will build upon existing watershed plans and data, such as those generated by the WRIAs. Regional salmon recovery plans will address the specific factors under the “four H’s” contributing to the decline of the salmon within the recovery region. An example of a regional recovery entity currently developing a recovery strategy is the Tri-County Partnership, consisting of representatives from the three most populous counties in Washington: King, Snohomish, and Pierce.

Local municipal habitat protection and restoration projects may proceed concurrently with regional watershed assessments and plans. Local initiatives, such as municipal subdivision ordinance reforms, occur within regional efforts, such as watershed conservation plans. For example, Seattle, though located within the Tri-Counties and an important player in the regional planning for recovery, has developed its own local strategy for recovery. This strategy largely implements part of the overall regional Tri-County Initiative.

It should be clear by now that Washington’s response to the salmon listings is not limited to a single statute or program. It proceeds on many fronts. Besides the initiatives already discussed, there are other important programs. For instance, recent

406. Washington Joint Natural Resources Cabinet, supra note 403.
407. Id.
408. Id.
409. Id. at 39.
410. Id.
411. Id. at 50.
412. Id.
legislation addresses minimum stream flows, and dairy farm regulation to control run-off.

In addition to the new initiatives, Washington has begun to retrofit its existing environmental and land use laws to accommodate salmonid conservation concerns. The Shoreline Management Act (SMA) was Washington's first comprehensive land planning statute. It requires every local government in a coastal location to adopt a protective shoreline master program approved by the Department of Ecology (DOE). The DOE is currently revising the SMA regulations and, despite a setback in a recent administrative challenge, is attempting to integrate salmon protection under the ESA and SMA.

The State Environmental Policy Act ("SEPA"), much like NEPA, requires a state agency or local government to prepare an environmental impact statement before making a decision that will have "a probable significant, adverse environmental impact." The SEPA's primary function is to inform decision-makers about the consequences of their actions, and to assess and mitigate the environmental impacts of state and local legislation and specific development proposals. The statewide recovery plan considers the SEPA a critical tool to enhance salmon habitat.

The most important law with respect to local land use planning is the Growth Management Act ("GMA"). The GMA seeks to manage urban growth to protect environmental and aesthetic values. The GMA applies to eighteen counties that are required to

416. Washington Joint Natural Resources Cabinet, supra note 403, at 86.
419. WASH. REV. CODE § 43.21C (1971).
420. Id. § 43.21C.031(1).
421. Id. § 43.21C.
422. Washington State Joint Natural Resources Cabinet, supra note 403, at 86.
424. More specifically, the planning goals aim to: (1) encourage development in urban
plan because of their high population or rate of growth. In addition, eleven counties have voluntarily chosen to plan under the Act. Together, these twenty-nine counties contain more than 80% of the state's population. The GMA requires local governments to create comprehensive plans to channel growth and ensure that it meets state-imposed development regulations. The plans address the key determinates of where and how growth occurs: land use, housing, capital facilities, utilities, and transportation.

A 1997 amendment to the GMA requires all GMA cities and counties to review and revise, if needed, their comprehensive plans and development regulations not later than September 1, 2002, and every five years thereafter. Additionally, two provisions of the Growth Management Act apply to all counties and cities in the state, whether or not they are planning under GMA: 1) the requirement to designate natural resource lands (agriculture, forest, and mineral lands); and, 2) the requirement to designate and protect critical areas. This second requirement is especially important to salmon recovery because the critical areas include both wetlands, and fish and wildlife habitat conservation areas. When designating and protecting critical areas, the GMA requires jurisdictions to use "best available science" and give "special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries."

areas where adequate public facilities and services exist or can be provided efficiently; (2) reduce low-density development (sprawl) in the state; (3) encourage efficient and well-coordinated multimodal regional transportation systems; (4) encourage the availability of affordable housing to all economic segments of Washington society; (5) encourage economic development consistent with GMA and promote economic opportunity for all citizens; (6) encourage growth consistent with natural resources; (7) preserve property rights from arbitrary and discriminatory actions; (8) process permits in a timely and fair manner to ensure predictability; (9) maintain and enhance natural resource industries; (10) preserve open space and recreation, and access thereto; (11) protect the aquatic environment, air and water quality; (12) encourage citizen involvement and coordination. Coordinate between and among communities and jurisdictions to reconcile conflicts; (13) ensure the availability of public facilities and services; and, (14) encourage active historic preservation. Id. § 36.70A.020.

425. Washington Joint Natural Resources Cabinet, Extinction is Not an Option, supra note 403, at 87.
427. Id. § 36.70A.070.
428. Id. § 36.70A.130(1).
429. Id. § 36.70A.170.
430. Id. § 36.70A.172(1).
c. The Tri-County Partnership

The Tri-County Partnership is the most important response to the 4(d) rule and will likely be a model for incorporating species recovery in an area-wide system of land use controls. It will also test the framework established in the 4(d) rule for approving and monitoring MRCI development plans.

In anticipation of the Puget Sound chinook listing, the most populous counties in the region, King, Snohomish, and Pierce, formed the Tri-County Partnership. In addition to county governments, the partnership includes representatives of federal, state, tribal and local governments; representatives of businesses and environmental groups; and ordinary citizens.\(^4\) The Tri-County Partnership developed and continues to revise an area-wide recovery plan (known originally as the "Tri-County Initiative to Recover the Puget Sound Chinook" and now being revised as the "Tri-County Model 4(d) Rule Response Proposal")\(^4\) that attempts to balance recovery goals with maintenance of the region's economic vitality.

As we have already noted, the Tri-County Partnership is an example of a regional entity developing a regional plan to help implement the statewide recovery strategy. The Tri-County Model is designed to guide the conservation plans and regulatory revisions of each local county and city within the area. However, some small cities that are not experiencing the great development pressures of Seattle, Takoma or Bellevue may focus only on habitat management. Other small cities are experiencing rapid growth and development, but have not yet tackled local implementation of the Tri-County Model because their planning staffs are underfunded and inexperienced. So, there remains great variation within the Tri-County region, which may limit the ultimate effectiveness of the partnership.\(^4\)


433. Also, though the entire Tri-County area is in the Puget Sound recovery region, delineated in the state recovery strategy to include all or part of 12 counties, it encompasses 21 WRIAs. Governor’s Salmon Recovery Office, *Salmon Recovery Regions* (Sept. 22, 2000), at http://www.governor.wa.gov/esa/regions.htm (last visited Nov. 29, 2001); Governor’s
The Tri-County Partnership presented its draft initiative to the NMFS on June 21, 2000, immediately following the June 20 announcement of the final 4(d) rule. The partnership had been working closely with NMFS throughout the development of the final rule and initially hoped to secure a specific limitation for its regional plan, much like the Oregon Department of Transportation secured a specific limitation for its maintenance plan in the final 4(d) rule.\textsuperscript{434} Instead, however, the NMFS created the general MRCI development limitation under which the Tri-County jurisdictions' programs will have to qualify. On May 18, 2001, the Tri-County Partnership published a revised draft response to the 4(d) rule, which the participating jurisdictions will use to steer local implementation.\textsuperscript{435} Though the Tri-County Model will not actually authorize any particular city or county land use program as an MRCI development limitation, the jurisdictions hope that NMFS' endorsement of the model will ease the process of approval of conforming local ordinances and programs.

The Tri-County Model includes the regional implementation of the state land use laws, such as the GMA, described above, in Subsection (b), as applied to the Puget Sound region. This makes it a showcase regional program as envisioned by the state strategy.\textsuperscript{436} The Tri-County Model contains six programs: road maintenance best management practices, stormwater controls, land management, habitat funding, watershed planning, and adaptive management. While seeking to provide some constraints to qualify under the 4(d) rule's MRCI considerations and the PFC standards, the programs allow local jurisdictions to make choices about what approaches are most effective in their locality.\textsuperscript{437} The programs contain schedules for phasing in restrictions and restoration efforts, but do not specifically detail how local ordinances may be amended. This may be particularly troublesome for the land management program.

The land management program consists of four parts: county-
wide planning policies, regulation of development, urban area controls, and agricultural practices. The countywide planning policies are designed to mesh the requirements of the GMA with the conservation demands of the 4(d) rule. Most of these advisory policies are broad statements promoting ecosystem management, monitoring, restoration of habitat, coordination of conservation efforts, control of runoff, and use of best available science. The regulatory component, implemented through existing local tools (such as critical areas ordinances, or forest practices permits), requires avoidance and minimization of development impacts and preservation of essential biological functions for salmon. The model establishes three alternative regulatory programs:

1. a prescriptive set of standard regulations that can be applied across an entire jurisdiction,
2. a site-specific habitat evaluation governed by a standard set of scientific goals and objectives, and
3. a programmatic approach that allows a jurisdiction to perform a habitat evaluation for a specific geographic area or upon a specific set of activities, resulting in a suite of regulations tailored to those specific areas or activities.

The Tri-County Initiative and Model reflect a great deal of conscientious work on assessment techniques, governmental control options, and commitments to monitoring and adaptive management. In addition, an outside environmental consultant is conducting a biological review of the revised model for the Partnership. However, it remains to be seen whether the municipalities will implement such key parts of the model as urban area controls and regulation of development in such a way as to contribute to recovery of the Puget Sound chinook salmon.

Seattle, a key municipality in the regional Tri-County Partnership, illustrates the way in which local land use controls can be adapted to conserve salmon. The city regulates a wide range of activities, including use of property; location siting, sizing and construction of new structures; alterations of existing structures; demolition; vegetation removal; grading, drainage, excavation and placement of fill; road, parking lot and driveway construc-

438. Id.
439. Id.
440. Tri-County Partnership, supra note 432, at Ch. 1 (Land Management Model Planning Policies).
441. Id.
tion; and utility installation. This pervasive regulation makes the city a key agent for effectuating MRCI development goals and other considerations.

The city implements the regulation by issuing permits that incorporate "site-specific development controls" which will vary depending on a number of factors, including the size of the project, whether it is in or over water, the amount of grading proposed, and whether the location is in a riparian corridor or within 200 feet of a shoreline. In addition to these substantive concerns, the Seattle approach also discusses administrative implementation. This dimension is almost entirely missing from the NCCP plans and the 4(d) rules. Seattle describes inspection and enforcement of permit conditions as part of its permit review process. The city's report to the NMFS discusses staffing increases for the development of new code provisions to better conserve salmon; staffing increases for permit review, inspection and enforcement; and staff training on fisheries issues. Also important for a city where 65 percent of the surface is impervious, Seattle has focused attention on adapting its stormwater management program to protect salmon.

With the improvements promoted in the Tri-County Model, the Seattle program will probably score high on all of the MRCI development considerations contained in the 4(d) rule. The Tri-County Model, if endorsed by NMFS, would provide a framework to speed local plan preparation and NMFS review without specifying exactly how the local jurisdictions will implement the ambitious goals. The NMFS cannot grant 4(d) limitations to non-bonding, framework plans. Indeed, one lesson from the litigation overturning Service decisions not to list species based on unenforceable conservation plans is that the ESA requires more than promises of future action to meet statutory criteria. To avoid making a similar mistake in the 4(d) program, the Service should authorize only programs that bind the jurisdiction with enforce-

443. Tri-County Partnership, supra note 435, at Ch. 2, Pt. I (Background).
444. Id.
445. Tri-County Partnership, supra note 432, at Ch. 2, Pt. IV (Adaptive Management for Regulatory Programs) and Ch. 4, Pt. I (Response to Endangered Species Act). The revised Tri-County model now contains implementation guidelines as well. Tri-County Partnership, supra note 432, at Ch. 8 (Implementation of the Model 4(d) Rule Response Proposal).
446. See infra note 461 and accompanying text.
able ordinances and regulations. This is the only way to ensure that 4(d) rules actually promote recovery, as required by ESA. But, the NMFS can answer advisory submissions with non-bonding endorsements to provide local jurisdictions with better guidance for developing MRCI limitation proposals. The major jurisdictions, such as King County and Seattle, will likely apply for MRCI development limitation authorization irrespective of the NMFS' decision on the Tri-County submission.

3. Conclusion

In many respects, the gnatcatcher presents a simpler recovery problem than the salmon. The gnatcatcher is non-migratory, lives exclusively in one plant community, and suffers from essentially a single threat, the reduction of coastal sage scrub habitat.\(^447\) If southern coastal California is able to preserve and restore the coastal sage scrub plant communities, the gnatcatcher will likely recover. The implementing land use plans under the gnatcatcher 4(d) rule, therefore, focus principally on establishing habitat reserves and buffer areas.

In contrast, the salmon migrate from the open ocean, through estuaries, up major rivers, and ultimately back to the tributaries where they were hatched. Threats to the salmon exist in all of these areas. The Puget Sound region needs to maintain aquatic habitat in riparian areas, but also must control the myriad factors that cause sediment, contaminants, and storm flows to enter waters of the area. This presents a much more difficult regulatory challenge. The implementing land use plans under the salmon 4(d) rule must focus on regulating ongoing activities throughout the region's watersheds, not simply on designating reserves. It is always harder to change existing practices than to protect undeveloped areas.

Nonetheless, both 4(d) rules suffer from insufficient federal standards to measure progress toward recovery. The gnatcatcher rule relies primarily on state guidelines oriented toward reserve design and management, and toward loose public participation requirements without formal rights of appeal or intervention. The only independent federal criterion for program approval is a finding of "no jeopardy." As with its early HCP approvals, the Clin-
ton/Babbitt Administration was eager to demonstrate that it could administer the Act flexibly and consistently with the interests of the state when it promulgated the gnatcatcher 4(d) rule adopting the NCCP. In doing so, it neglected to incorporate sufficient programmatic safeguards or spurs to ensure recovery.

The salmon rule does a better job at providing substantive guidance for local land use control. Its requirement that local plans demonstrate progress toward recovery through PFC establishes a good foundation for conservation through adaptive management. There is an inherent tension between crafting a generally applicable 4(d) rule and establishing specific, binding standards. It remains to be seen whether the PFC can be monitored and sustained in highly modified urban settings. Still, more detailed substantive criteria for development plans and administrative requirements for local jurisdictions to demonstrate their capacity for effective and fair enforcement would improve the rule.

VI. RECOVERY THROUGH COOPERATIVE FEDERALISM: TAPPING THE POTENTIAL OF § 4(d)

Section IV of this article described Section 4(d) as an ideal vehicle for making a transition in the ESA program toward more comprehensive conservation through cooperative federalism. But, the strengths of the 4(d) rule extend beyond just its recovery requirement and its ability to enlist the mechanisms of state land use regulation in conserving listed species. This section reviews these two principal strengths and describes other benefits offered through the use of a comprehensive 4(d) rule. This discussion stresses the comparative advantages of employing 4(d) rules instead of Section 10(a) permits as the primary instrument for promoting comprehensive conservation on non-federal lands. This section also answers some likely objections to the widespread use of 4(d) rules.

In describing the potential strengths of a 4(d) program, we push past the limitations of the gnatcatcher and salmon examples described in the previous section. While these moderate applications of Section 4(d) do represent progress in the ESA program, we are interested in exploring the full, untapped potential of 4(d) rules to be developed in the future.
A. Strengths of Expanded Use of the 4(d) Rule

1. The 4(d) Rule Harnesses Cooperative Federalism

As the gnatcatcher and salmon examples illustrate, Section 4(d) can harness the power of cooperative federalism to establish working partnerships between the Services and state/local governments.\textsuperscript{448} For decades, the federal government has established cooperative agreements with states to manage public lands jointly and contribute federal monies to state wildlife programs. However, cooperative agreements to allow states to issue permits and regulate under federal oversight, which are ubiquitous in pollution control law, have been absent from resource management law in general and the ESA in particular.

The ESA Section 6 cooperative agreements can and should be used in conjunction with 4(d) rules to fund state programs to implement specific comprehensive recovery plans for listed species.\textsuperscript{449} A 4(d) rule should establish criteria for local jurisdictions and state agencies to apply in designing land use controls, and best management practices for agriculture and forestry. In exchange, the planning jurisdiction can control the details of implementation, become eligible for cooperative agreement funding,

\textsuperscript{448} The terms "cooperative federalism" and "cooperative agreement" traditionally refer to a relationship between the federal government and a state government. In this article, we mean to broaden the meaning of the terms to include also the relationship between the federal government and local jurisdictions such as cities, counties, and watershed authorities. These local jurisdictions are all created by states and operate under state enabling legislation. Local governmental entities are creatures of state law just as the NMFS and FWS are creatures of federal law. Therefore, a federal approval of a county land use control program under a 4(d) rule involves the state legal regime, which determines what counties may do and how they may do it. One might consider the broader meaning of "cooperative federalism" to be a form of the "democratic experimentalism" advocated by Charles Sabel, Archon Fung, and Bradley Karkkainen. See Charles Sabel et. al., Beyond Backyard Environmentalism: How Communities Are Quietly Refashioning Environmental Regulation, BOSTON REV., Oct.-Nov. 1999, reprinted in BEYOND BACKYARD ENVIRONMENTALISM 3, 30-36 (Joshua Cohen & Joel Rogers eds., 2000).

\textsuperscript{449} The political dynamics of Congress are likely to make more money available under cooperative federalism schemes than under a purely federal permit program, such as ESA Section 10(a). So, cooperative 4(d) rules do not simply shift permitting costs from the federal government to states. They can be expected to increase federal spending on species conservation. State congressional delegations will support federal grants to states that enter into cooperative agreements. It is always more politically popular to appropriate money to support state and local governments than it is to fund a federal regulatory regime. See notes 178-179 supra and accompanying text for a description of the funding levels for states under the ESA.
and enjoy protection from Section 9 indirect governmental liability. Greater use of cooperative agreements with states can instill a sense of ownership in the ESA program, and can help to ensure that the states are better educated as to the flexibility built into the Act. As state agencies become better educated, affected parties will find a larger pool of experts who can assist them in designing their actions to avoid conflicts with listed species.450

Urban areas, such as the Puget Sound and San Diego regions, are good starting points for applying the principles of cooperative federalism to comprehensive recovery planning for two reasons. First, they tend to have existing land use controls, so a 4(d) rule protecting habitat would not need to start from scratch to develop a system of controls. Professor Tarlock has cataloged many of the common local powers (and their limitations) that can be used to protect biological diversity.451 A 4(d) rule can require the planning jurisdiction to modify existing land use controls to conform with a recovery program. It can rely on the administrative infrastructure that already exists to inspect, permit, and evaluate land use. A comprehensive 4(d) rule in an urban area can build on existing traditions rather than attempt to change local attitudes towards land use control. Seattle, for instance, which has an extensive land use control regime, is doing this under the framework of the Tri-County Initiative and Model.452 Existing land use controls also create a history of administration that the Services can use to evaluate whether the local jurisdiction has the capacity and political will to implement protections.453

Second, habitat destruction in urban areas often results from numerous small land-disturbing activities, rather than a few large operations. Widely dispersed harm is very difficult for the Services to control. Local jurisdictions, in contrast, are already on the scene. The local jurisdictions use police, inspectors, and neighbors to monitor land use for human health, safety and welfare. In his

451. Tarlock, Local Government Protection of Biodiversity, supra note 2, at 574-584. Our proposal to employ cooperative federalism in 4(d) rules fulfills many of the suggestions Professor Tarlock makes to use "partnership federalism" to address biodiversity conservation. Tarlock, Biodiversity Federalism, supra note 2, at 1350-53.
452. See supra notes 442-446 and accompanying text.
453. See John Pendergrass, What Whitman May See in N.J. Program, ENVT. F., Mar./Apr. 2001, at 10 (describing how federal approval of state pollution control programs generally occurs only after the programs have been fully operating at the state level).
study of HCPs, Timothy Beatley concludes that preventive land use planning and growth management in areas such as Kern County, California, can effectively serve as the basis for comprehensive conservation.454

Harnessing this state land use control power would also relieve the Services from the burden of processing hundreds of permits.455 Because the 4(d) rule could define the universe of prohibited activities, it could find that any land disturbing activity that conforms with a federally approved state conservation program meeting the recovery criteria does not constitute a take of the threatened species. Since the activity is not a take in the first place, it need not receive a federal incidental take permit to shield the responsible parties from Section 9 liability. The state conservation plan may require permits for certain activities; but, there are other state land use control options, such as zoning overlays and notification requirements, that are less burdensome for private landowners. Even where local permits may be required, property owners often find it more convenient and user-friendly to apply and negotiate with a local agency than with the federal government. The federal Services, then, would be left with the task of evaluating the aggregate progress that the state program makes toward specific recovery goals.456

Delegating implementation of a land use/habitat recovery plan over a large area responds to criticisms that, in negotiating HCPs, the Services insert their interests into local land use decisions with little input from the elected officials of the community.457 A 4(d) rule can allow local land use plans to incorporate and customize biodiversity conservation tools.458 A 1998 University of Michigan study found that states often face the same "obstacles to participating effectively" in HCP negotiations as private stakeholders.459

454. TIMOTHY BEATLEY, HABITAT CONSERVATION PLANNING: ENDANGERED SPECIES AND URBAN GROWTH 204-06 (1994).
455. It would, of course, also relieve landowners from applying for the 10(a) permits. Landowners following local rules or getting local permits would not need to make parallel applications to a Service. We discuss this advantage as a counterbalance to the loss of some future certainty in VI(A)(4), infra notes 566-567 and accompanying text.
456. See, e.g., supra notes 366-368 and accompanying text (describing the salmon 4(d) rule's use of PFC as a measure of progress in local jurisdictions).
458. See, e.g., BEATLEY, supra note 454, at 160-172, 204-206.
Cooperative plans under a 4(d) rule restore state and local government to a key role in developing conservation plans. States have attempted to respond to the burdens of the Section 9 prohibitions by adopting conservation plans to avoid species listings. Though these tactics tend to falter in the courts because they often rely on unenforceable promises, they do illustrate the untapped interest of states to play a role in species conservation and to ease the sting of the untailored take prohibition.

In developing the cooperative 4(d) rule, the Services may borrow from pollution control law. Consider the analogy between the challenges of improving air quality and the challenges of recovering species. Some air pollution originates directly from point source emissions. These sources are regulated by requiring permits for emissions under the Clean Air Act. In degraded areas, permits require offsets for new sources of pollution through the abatement of pollution from existing sources. Similarly, direct habitat destruction, such as the logging or clearing of forests, can be regulated through permits. Also, the habitat loss should be offset by habitat restoration or preservation in another location. In the habitat conservation context, these offsets are often called mitigation.

The San Diego County MSCP Subarea Plan applies this principle to habitat protection.

But air pollution also originates from the diffuse mobile and "area" sources, which often are the result of land use patterns, such as the arrangement of residences to work places. The Clean Air Act addresses this cause of air pollution by requiring such

460. The NCCP pilot project in California and the salmon strategy in Washington both originated as attempts to avoid listings. See supra notes 264, 379 and accompanying text. See also Blumm & Corbin, supra note 17; Golightly, supra note 182 (describing the Oregon state strategy for salmon conservation).


463. See Beatley, supra note 454, at 170-171, 198-199 (describing mitigation ratios that require restoration of a greater area than is destroyed by development). In the coastal sage scrub NCCP region, the San Diego Biological Mitigation Ordinance, discussed supra notes 329-335 and accompanying text, applies a kind of offset to the problem of habitat conservation.

464. See supra notes 329-334 and accompanying text.
things as transportation planning,\textsuperscript{465} technical assistance,\textsuperscript{466} and public education.\textsuperscript{467} Similarly, area-wide land use patterns determine where species can continue to be viable, where potential habitat for preservation is located, and what corridors are needed for migrations. To address these concerns, the ESA must address land use patterns, offer technical assistance in how to accomplish commercial activities (such as construction) with a minimum of habitat degradation, and educate the public in the threats from everyday activities to species. The Tri-County region is attempting this in protecting stream corridors, and the CSS region in developing networks of reserves.

Though the federal Clean Air Act requires that these steps be taken to improve air quality, it relies on states to develop the permits, plans, technical assistance, public education, and other necessary tools through the state implementation plan ("SIP").\textsuperscript{468} The role of the EPA is to establish, through notice and comment rulemaking, the basic criteria that SIPs must meet.\textsuperscript{469} The Clean Air Act allows and encourages each state (and frequently each air region within each state) to tailor to local circumstances a different blend of controls to achieve the federal air quality criteria. Under a SIP, a state has some flexibility to allocate the burden of controlling air pollution among the range of sources.

\footnotesize{465. See Arnold W. Reitze, Jr., \textit{Transportation-Related Pollution and the Clean Air Act's Conformity Requirements}, 13 NAT. RES. & ENV'T 406 (1998).}

\footnotesize{466. For instance, the Puget Sound Air Pollution Control Agency in Washington has worked with small businesses, building owners, and property managers to reduce emissions of perchloroethylene and asbestos. Suellen Terrill Keiner, \textit{State and Local Innovations in Air Quality Control}, 13 NAT. RES. & ENV'T 413, 413-414 (1998). The NMFS offered workshops on the 4(d) process in the Puget Sound to help landowners and local governments understand their roles and responsibilities. See Salmon Information Center at http://www.salmoninfo.org/news/4dworkshops.htm. The NMFS also published a guide for citizens and one for local governments to provide additional technical assistance, available at http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/citguide.htm; and http://www.nwr.noaa.gov/1salmon/salmesa/4dguid2.htm.}

\footnotesize{467. See Suellen Terrill Keiner, \textit{State and Local Innovations in Air Quality Control}, 13 NAT. RESOURCES & ENV'T 413, 415 (1998) for examples of public education and media alerts that encourage people to take personal steps to reduce air pollution. The Puget Sound salmon conservation effort includes numerous public education initiatives on television, web sites, and billboards. See, e.g., Salmon Information Center at http://www.salmoninfo.org; http://www.salmoninfo.org/sitvmain.htm. In addition the public can call, toll free, 1-877-SALMON9 for answers to questions and suggestions for ways to help.}

\footnotesize{468. See John P. Dwyer, \textit{The Practice of Federalism Under the Clean Air Act}, 54 MD. L. REV. 1183, 1193-1216 (1995) (describing the role of the SIP in creating the federal-state partnership to achieve the goals of the Clean Air Act).}

\footnotesize{469. 42 U.S.C. § 7410(c)(1) (2001).}
If a state does not comply with the federal guidelines, or does not enforce its plan, then the EPA may penalize the state in a number of ways, including withholding federal funds for highways and imposing federal restrictions and permit requirements directly on the states. Periodically, in response to new information, changed circumstances, or requirements for incremental environmental improvements, the EPA will announce a "SIP call" to demand that states revise SIPs. But, the EPA itself will not step in to revise a SIP unless a state fails to comply. Also, though the state agencies have routine enforcement and implementation responsibilities, the EPA has residual authority to oversee these efforts. The 4(d) rule, by setting the basic criteria for recovery and allowing a region to adopt its own mix of controls, can employ all of these characteristics of cooperative federalism. The gnatcatcher and salmon 4(d) rules both employ most of these components of cooperative federalism. Though the ESA lacks important financial sticks, such as loss of highway funds, indirect governmental liability raises the specter of judicial interference with state or local land use control. Congress will need to increase substantially the financial carrots available to states operating programs qualifying under a 4(d) rule by making more cooperative funding available.

The Clean Air Act requires SIPs for degraded airsheds to demonstrate incremental progress over the years toward achieving air quality standards. Similarly, 4(d) rules should set incremental goals for habitat recovery that state plans would meet over the course of several years. The Clean Air Act requires that the more severely degraded an area's air, the more stringent the SIP requirements. The SIP development process, requiring an inventory of problems, modeling of effects, the development of en-

470. Id. §§ 7410(c)(1), 7410(m), 7509. See, e.g., David Firestone, Collapse of Atlanta Talks Keeps Road Builders Idle, N.Y. TIMES, Jan. 4, 2001, at A18 (describing how first the EPA and then environmental groups used these penalty provisions to halt new road construction in Atlanta).


472. Id. §§ 7501(1), 7502(c) (mandating reasonable further progress in reducing degradation).

473. See, e.g., id. § 7511a (providing more stringent requirements, such as higher offsets for new sources, and for areas with greater ozone pollution problems).

474. Id. § 7502(c)(3).

475. Id. § 7410(a)(2)(K). The regulations set forth detailed guidelines on air quality models that states may use to demonstrate that a control strategy will be adequate. 40 C.F.R. Pt. 51, Appendix W (2000).
forceable control measures to address the problems, monitoring of results, and continual revision to adapt to results is strikingly similar to the adaptive management process advocated by most scientists for conserving species. Just as SIPs guide regions into compliance with ambient air quality standards, state plans under 4(d) rules should map out a path to meet the ESA's goal: recovery.

For instance, if stormwater discharges from new construction impede salmon reproduction in the Puget Sound basin, the 4(d) rule might phase in progressively more stringent sedimentation controls. Plans may have to provide for "offsets" of recovery habitat to mitigate damage done by permitted development. Rather than comprehensively managing all pollution, a SIP concentrates on remedying the most severe air pollution problems in a region. A 4(d) rule should similarly focus on the imperiled species of an area rather than attempting to manage all habitat concerns. Nonetheless, even single-species conservation objectives will often demand controls on a wide range of activities, such as land use development, application of chemicals, traffic management, and exotic plant control.

Like species recovery, air quality improvement requires land use planning and control, basically a state and local function. The Clean Air Act recognizes that, without state and local partners, the federal government is unequipped to respond to place-based environmental problems that arise from the peculiar circumstances of a region's geography and economy. However, like the Clean Air Act SIP requirement, the 4(d) rule should condition approval of a state conservation plan on a demonstration that the state has the administrative capacity to enforce and implement its commitments in the plan. The gnatcatcher and salmon rules are particu-

476. 42 U.S.C. §§ 7410(a)(2)(A), 7502(c)(6) (1994). Control measures include economic incentives such as fees and marketable permits.
477. Id. § 7410(a)(2)(B).
478. Id. §§ 7410(a)(2)(H), 7502(d).
479. Adaptive management is discussed infra notes 541–549 and accompanying text.
481. 1 WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW § 3.9(A) (1986).
482. 42 U.S.C. § 7410(a)(2)(A), (C), (E) (requiring enforceable control measures, an enforcement program, and necessary assurances that the state has adequate personnel, funding, and authority to carry out the SIP). See Markell, supra note 166, at 38-39, 44-51 (describing weaknesses common in state administrative capacities to enforce environmental
larly weak in establishing a standard to ensure effective administration of substantive requirements.\textsuperscript{483} An exception to the general neglect of local administrative capacity is, as a consideration for NMFS approval of MRCI development programs, the provision of "mechanisms for monitoring, enforcement, funding, reporting, and implementation, and periodic . . . evaluation."\textsuperscript{484}

As with the prior comparison of permit programs under the ESA and Clean Water Act, it is important to resist idealizing the pollution control model.\textsuperscript{485} In practice, the SIP scheme does not live up to its potential or achieve all of its statutory goals. Air quality has improved under the SIP regime, but many SIPs suffer from a lack of clear, enforceable standards, incomplete control programs, and delays in design, adoption, and implementation.\textsuperscript{486} States and local jurisdictions continue to complain that they do not have enough autonomy under cooperative federalism. The SIP program specifically, and cooperative federalism generally, certainly has its share of critics.\textsuperscript{487} But, importing some of the basic tools from cooperative federalism to the relatively shorthanded Services will result in greater progress toward leveraging local land use controls to protect habitat.

Although SIPs necessarily deal with land use control, the issue is not as central as it is in habitat management. And, land use control has been one of the weaker segments of the SIP program.\textsuperscript{488} Moreover, air pollution is not exactly analogous to biological endangerment. Perhaps the most crucial difference is that the atmosphere naturally cleanses many air pollutants over time so that

\begin{itemize}
\item \textsuperscript{483} Professor Markell has discussed some of the EPA's shortcomings in assuring that states receiving federal authorization under pollution control laws have adequate enforcement programs. Markell, \emph{supra} note 166, at 35-39.
\item \textsuperscript{484} 50 C.F.R. § 223.203(b)(12)(i) (2000).
\item \textsuperscript{485} See \emph{supra} notes 160-165 and accompanying text.
\item \textsuperscript{487} See, e.g., Pedersen, \emph{supra} note 486; Rena L. Steinzor, \emph{Devolution and the Public Health}, 24 HARV. ENVTL. L. REV. 351 (2000); Rena L. Steinzor, \emph{Reinventing Environmental Regulation Through the Government Performance and Results Act: Are the States Ready for the Devolution?}, 29 ENVT L. Rep. (Envtl L Inst.) 10074 (1999).
\item \textsuperscript{488} See Arnold W. Reitze, Jr., \emph{Transportation-Related Pollution and the Clean Air Act's Conformity Requirements}, 13 NAT. RES. & ENV'T 406 (1998) (describing some of the transportation planning requirements); Dwyer, \emph{supra} note 468, at 1199-1208 (describing the successive failures of the EPA to force states to address land use controls in SIPs).
\end{itemize}
current pollution may not significantly impair the quality of air in the future. In comparison, habitat loss leading to population decline in a species generally is less reversible. Once an imperiled species population reaches a certain low level, it may never recover.⁴⁸⁹ Many habitat-destroying activities, such as paving, degrade the environment in a way that will not abate in the foreseeable future.

For instance, suppose the Service revokes authorization to a local jurisdiction for an exception to the take prohibition because the funding mechanism for purchase of mitigation reserves failed to support the level of habitat protection required for recovery. This plausible scenario has been described as likely by a court for a proposed HCP⁴⁹⁰ and by a commentator for the San Diego NCCP plan.⁴⁹¹ Though revocation may restrict future development from thwarting recovery of the species, existing development authorized by the now-revoked plan with the flawed funding mechanism will already have done its irreversible damage. Suitable mitigation sites may no longer be available by the time the local plan can be revised.

Nonetheless, the basic principle of a state shaping its authorities to conform to national environmental goals is sound for both pollution control and resource protection. The SIP model certainly could be improved in its details as it is adapted to serve Section 4(d). Also, cooperative federalism success depends on adequate funding and enforcement capabilities of state and local agencies. But, particularly in the ESA program, where the potential for cooperative conservation has not been tapped often, inviting states to adapt existing land use control authorities will achieve significant early gains. In the longer term, a habitat conservation partnership between the Services and the states may spur the states to develop better growth planning in order to enjoy the benefits of a cooperative 4(d) agreement.

⁴⁸⁹ See, e.g., Leah R. Gerber, et al., Measuring Success in Conservation, 88 AM. SCIENTIST 316, 323 (2000) (describing the "extinction vortex" that pulls species inexorably towards extinction once population levels fall below a certain level). The geologic record indicates that global species diversity required one to eight million years to rebound after previous periods of mass extinction.
⁴⁹¹ Levin, supra note 314.
2. The 4(d) Rule Promotes Recovery

Unlike the statutory criteria for finding no jeopardy in consultation or issuing an incidental take permit (and, notwithstanding the gnatcatcher rule), Section 4(d) explicitly requires that rules provide for species "conservation." Recall that "conservation" is a term of art, defined by the ESA to mean the "use of all methods and procedures which are necessary" to recover listed species so that they no longer need the protection of the Act. Conservation is also a duty that the Services share with other federal agencies. The conservation mandate of Section 7 requires that agencies "utilize their authorities in furtherance of the purposes" of the Act. And, the statutory purpose of the Act is to "provide a means whereby the ecosystems upon which [listed] . . . species depend may be conserved. The Services' statutory authorities under the ESA and other legislation such as the Migratory Bird Treaty Act and Marine Mammal Protection Act contain far more useful tools for conserving species than the authorizing legislation for most other agencies. The Services, therefore, have a greater burden under the Section 7 conservation mandate than those other agencies whose authorities do not provide such direct and effective tools for conservation. In addition, Section 4(c) of the Act places a special conservation mandate on the Services to implement recovery plans for listed species. A 4(d) rule promoting conservation can be an important part of any recovery plan for a threatened species dependent on privately owned habitat. Even if the Services have not yet prepared a Section 4(f) recovery plan, the Section 7 affirmative conservation duty does require the Services to have some "specific and particular" plan or program to recover the species. A 4(d) rule can be an important part of such a plan or program.

494. Id. § 1536(a)(1).
495. Id. § 1531(b).
496. Id. §§ 703-712.
497. Id. §§ 1361-1421(h).
498. Id. § 1533(f).
499. Sierra Club v. Glickman, 156 F.3d 606, 615 (5th Cir. 1998) (holding that the U.S. Dept. of Agriculture violated the Section 7 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).
Not only does the recovery criterion for the 4(d) rule fulfill the statutory mandates of the Act, it is also good policy. Recovery usually requires planning over a network of habitat reserves, with corridors connecting small fragments. Because the 4(d) rule can cover a significant portion of the range of a listed species, it can spread the burden of habitat protection over a larger area and reconnect fragmented ecosystems. Project-by-project piecemeal approaches to reducing injury to species seldom add up to recovery and often result in disparate burdens on landowners.

Even the strict prohibitions of Section 9 applicable to endangered species frequently are insufficient to assure species recovery. In addition to requiring no Section 7(a)(1)-like affirmative conservation steps, the prohibitions do not protect currently unoccupied habitat that may be required for a species to recover. A Section 4(d) rule that sets out criteria for a conservation plan introduces the affirmative recovery mandates from Sections 4 and 7(a)(1) into promulgated guidelines for state and local planners to adopt to avoid liability for Section 9 takes. In this paradoxical sense, tailored prohibitions under Section 4(d) for threatened species may be more protective than the general Section 9 prohibitions applicable to endangered species.

Also, although the second sentence of ESA Section 4(d) allows the Services to use any of the prohibitions under Section 9 applicable to endangered species, it does not, on its face, limit the Services to these prohibitions. The Section 4(d) power to regulate private activity, therefore, under a purely textual analysis, can be interpreted more broadly than Section 9. While this interpretation is bolstered by Section 4(d)'s first sentence which mandates that the Services issue regulations deemed "necessary and advisable" to provide for recovery, it is not consistent with the legislative history of the Act. Recall that the discussion surrounding the

503. Wilcove et al., supra note 500.
505. Id.
adoption of Section 4(d) in 1973 centered on providing a safety valve to reduce the hardships of applying the stringent take prohibitions across the board even to species designated as less imperiled than the high priority endangered category. That legislative history militates against interpreting Section 4(d) to allow the Services to impose greater restrictions for threatened species than Section 9 does for endangered species. Still, the cooperative federalism 4(d) rule guidelines to qualify a jurisdiction for exemption from the Section 9 prohibitions may contain proscriptions not covered by Section 9. Those guidelines are not imposed but rather accepted by the jurisdiction in exchange for the relief from the Section 9 statutory prohibitions.

As long as the Services continue to interpret the term "jeopardy," and implement the Section 10(a) "survival and recovery" criterion, as requiring no more than the avoidance of extinction, then the 4(d) rule will be a better tool for comprehensive conservation planning. In 1986, the Services added the word "both" to the term "survival and recovery," which defines the circumstances under which appreciable reduction in the species viability would constitute jeopardy. Since then, the Services interpretation has been that "except in exceptional circumstances, injury to recovery alone would not warrant the issuance of a jeopardy opinion." The Services, therefore, normally require injury to survival to trigger a "no jeopardy" finding. The Services interpret "survival" to mean the "retention of a sufficient number of individuals and/or populations with necessary habitat to insure that the species will keep its integrity in the face of genetic recombination and known environmental fluctuations." Hence, the consultation, "no jeopardy" standard, which each incidental take permit must meet, falls short of requiring some affirmative contribution toward recovery.

Although the statutory criteria in Section 10(a) for issuing a

506. See supra notes 227-232 and accompanying text (describing the legislative history of Section 4(d)).
508. Id. § 1539(a)(2)(B)(iv).
511. Id.
permit do not contain the word "both" modifying the "survival and recovery" term, the Services appear to be applying the standard in same way as they apply the "no jeopardy" criterion.\textsuperscript{512} Indeed, the HCP handbook makes the incorrect assertion that the 10(a) criterion requiring the take not appreciably reduce the likelihood of survival and recovery of the species\textsuperscript{513} "is identical" to the Services' jeopardy definition, which includes the word "both."\textsuperscript{514} In its conference report on the 1982 amendments creating the incidental take permit program, the House committee stated that the Services should determine whether to grant a permit "in part, by using the same standard as found in Section 7(a)(2) of the ESA, as defined by the [Services'] regulations."\textsuperscript{515} At that time, in 1982, the applicable regulations did not modify "survival and recovery" with the term "both."\textsuperscript{516} Therefore, Congress may have intended the 10(a) criterion to be more stringent, perhaps assuring no appreciable reduction in the recovery as well as in the survival of the species.

Nonetheless, a change in the Services' interpretation of this standard for issuing an incidental take permit to give greater emphasis to recovery is unlikely considering the recent investment the Services have made in their "no contribution to recovery necessary" interpretation.\textsuperscript{517} This will result in more plans like the Balcones Canyonlands Conservation Plan in Texas, which sought to preserve the minimum habitat to prevent extinction.\textsuperscript{518} Melinda Taylor notes that "[t]he ultimate result of preserving minimum habitat to stave off extinction will not be the long term preservation..."
tion of protected species, but rather a prescription for ultimate failure." Moreover, the piecemeal nature of permit-by-permit decision-making makes incorporating habitat recovery very difficult. Habitat recovery typically requires looking at the entire range of a listed species and making judgments about trade-offs and corridors.

3. The 4(d) Rule Promotes Comprehensive Conservation

Nobody disputes Congress' logic in declaring that meeting the goal of species recovery requires conserving the ecosystems upon which the species depend. The National Research Council expressed the corollary that "habitat protection is a prerequisite for conservation of biological diversity and protection of endangered and threatened species." Ecosystem conservation, of course, requires that habitat be managed over a large enough area to provide sufficient range for species recovery. Commentators advocate ecosystem, or large-scale area-wide, planning for conserving biological diversity. At least one court has seen the light and suggested that compliance with the ESA and other statutes requires "planning on an ecosystem basis."

Though the Services encourage large-scale, area-wide HCPs, they remain mired in the reactive mode of responding to whatever permit applications landowners make. In 1997, Michael O'Connell reported that about 85 percent of HCPs were for "single landowners, single species, and relatively small areas."

519. Id. at 601, quoted in Sheldon, supra note 131, at 313.
520. See supra notes 18-20 and 500-502.
522. NATIONAL RESEARCH COUNCIL, supra note 12, at 7.
524. Seattle Audubon Soc'y v. Lyons, 871 F. Supp. 1291, 1311 (W.D. Wash. 1994) (upholding the interagency, ecosystem management plan for the federally owned forests within the geographic range of the threatened northern spotted owl).
525. O'Connell, supra note 457, at 18. See also PETER KAREIVA et al., USING SCIENCE IN HABITAT CONSERVATION PLANS 4-16 (1999), at http://www.nceas.ucsb.edu/projects/hcp. Excellent summaries and analyses of the report include Frances James, Lessons Learned from a Study of Habitat Conservation Planning, 49 BIOSCIENCE 871 (1999); Laura Watchman, Martha Groom, and John D. Perrine, Science and Uncertainty in Habitat Conservation Planning, 89 AMERICAN SCIENTIST 351 (2001). See also Noss et al., supra note 15, at 35, 49; DEFENDERS OF
single landowner, of course, faces a much higher transaction cost to organize an area-wide plan into which her activity will fit than she does to apply for a permit for just her activity alone. So, the landowner has little incentive to respond to the Services' preference that she collaborate with other landowners and citizens for comprehensive planning. The 4(d) rule promotes comprehensive conservation planning because it allows the Services rather than permit applicants to define the boundaries of the plan area and to set the priorities for which areas deserve attention first.

Comprehensive planning is preferable to piecemeal project permitting not just from an ecological perspective. It also more effectively meets the Services' goal of "minimizing social and economic impacts." Comprehensive planning is cheaper and more flexible. It is cheaper because it spans a wider area to find the best conservation opportunities for the least cost. It is more flexible because it disperses the burden of preservation or restriction of development over a broad area to allow for more trade-offs. This, of course, is precisely the strategy of the area-wide 4(d) rules for the California gnatcatcher and the Puget Sound salmon. It is also a strategy embraced in such pollution control law programs as offsets and other forms of emission trading under the Clean Air Act.

The earlier conservation efforts are directed towards species recovery, the greater the chance they will be successful at a lower price. Just as flexibility to trade off between habitat conservation and degradation shrinks with the geographic size of the plan, it also diminishes over time as a species becomes more imperiled. The Services have endorsed this view in a policy that states: "initiating or expanding conservation efforts before a species and its habitat are critically imperiled increases the likelihood that simpler, more cost-effective conservation options will still be available

WILDLIFE, FRAYED SAFETY NET: CONSERVATION PLANNING UNDER THE ENDANGERED SPECIES ACT 44 (1998). As of Dec. 31, 1999, approximately 63% of HCPs covered 100 acres or less, and 78% of HCPs covered 500 acres or less. Only 2% of HCPs covered 500,000 acres or more. Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning & Incidental Take Permitting Process, 65 Fed. Reg 35,242, 35,248 (June 1, 2000).


527. See BEATLEY, supra note 454, at 204.

528. See O'Connell, supra note 457, at 19-21.
and that conservation will ultimately be successful." Any comprehensive conservation plan should promote early action. To some extent, the 4(d) rule has this incentive built in. Local jurisdictions will prefer to get plans approved under 4(d) before a species declines to the point at which desperate habitat needs impinge on the trade-offs that smooth the way for a politically acceptable plan.

An additional incentive is also provided by the Act. Section 4 of the ESA requires a Service to take into account conservation efforts of a state or local jurisdiction before determining whether to list a species. These pre-listing conservation efforts are generally called candidate conservation agreements. Many candidate conservation agreements, such as the one between NMFS and the state of Oregon to prevent the listing of Oregon coho salmon, are too little and too late to succeed. However, if agreements go beyond speculation on future regulation and voluntary actions to outline binding promises to relieve the need for listing, then candidate conservation agreements extended over large areas could become the ultimate in collaborative comprehensive plans.

Unfortunately, the Services are currently pushing the candidate conservation agreement tool to the very limits of its legality. A new policy has created candidate conservation agreements with


530. See supra notes 431-446; 264-279 and accompanying text for descriptions of how California and Washington sought early approval from the Services of their conservation efforts.


assurances. Parties to these agreements receive "assurances from the Services that additional conservation measures will not be required and additional . . . resource use restrictions will not be imposed should the species become listed in the future."535 Certainly, landowners need incentives to conserve species on the verge of listing.536 However, the assurances in the new policy are too enduring and allow future promises to counterbalance current threats.

For candidate conservation agreements to work, the Service must facilitate them long before listing is warranted.537 That way, management plans can obviate rather than respond to a need to list a species. If the plan fails to keep a species from slipping to the listing threshold, then at least it may sustain a large enough population to avoid a listing as endangered. Upon a threatened listing, then, the agreement may serve as a basis for a more flexible 4(d) rule than would otherwise be promulgated. This should be inducement enough for landowners and local governments to collaborate on conservation with the Services: the up side of succeeding is great, the avoidance of listing; and, the down side of failing is not so bad, a threatened listing with a foundation for the development of a state-implemented plan through a 4(d) rule. This consolation prize sustained comprehensive planning efforts in Washington and Southern California despite those states' failure to prevent listing. Even Oregon, after failing to prevent salmon listings with its statewide initiative, subsequently re-adopted the initiative as a blueprint for conserving threatened habitat.538

Just as a pre-listing conservation agreement that does not suc-


536. See, Ortiz, supra note 461, at 463-64 (1999) (describing how landowners began clearing their properties of golden-cheeked warbler habitat to avoid the possible land use restrictions when the Service considered listing the bird).

537. See id. at 478-487 (describing cases rejecting the Services' decisions to abandon an initiated listing because of a candidate conservation agreement).

ceed in staving off listing can serve as a basis for a 4(d) rule, a 4(d) rule conservation plan may serve as a basis for a delisting agreement. Delisting occurs when a Service, through notice and comment rulemaking, removes a species from the threatened or endangered list. A delisting decision is based on the same criteria as a listing decision: a review of the factors affecting the continued existence of a species. In her recent analysis of delisting under the ESA, Professor Doremus recommends that strong state laws and conservation agreements specifying enforceable means of ensuring species protection be the basis for delisting decisions. The future possibility of delisting in response to a Section 4(d) comprehensive plan that succeeds (and then basing the delisting agreement on the existing 4(d) plan) should provide a further incentive for states and landowners to participate.

4. The 4(d) Rule Responds Adaptively to Uncertainty

The assurances offered by the new candidate conservation agreements are typical of the Administration's efforts to enlist private landowners to help preserve and restore habitat. Recall the most important component of the Administration's initiative, the "no surprises" policy, which provides an incidental take permit holder a guarantee that no new obligations will arise from new information or unforeseen circumstances. This will place an enormous strain on future administrations struggling to promote recovery with HCPs and candidate conservation agreements based on outdated assumptions. About the only thing certain with respect to conservation biology is that circumstances will change and new information will disturb existing understand-

540. Holly Doremus, Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation, 30 Envtl. L. Rep. (Envtl. L. Inst.) 10,434, 10,453 (2000) (these laws and agreements would ensure that, once population levels rebound to the point of delisting, the risks that created the need for listing in the first place would be controlled).
541. The Services, however, have not published de-listing criteria with the 4(d) rules. See, e.g. Final Rule Governing Take of 14 Threatened Salmon and Steelhead Evolutionary Significant Units (ESUs), 65 Fed. Reg. 42,422, 42,439 (July 10, 2000) (to be codified at 50 C.F.R. pt. 323). Those criteria must await recovery plans.
542. "Unforeseen circumstances" are "changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species." Habitat Conservation Plan Assurances ["No Surprises"] Rule, 63 Fed. Reg. 8859, 8870-71 (Feb. 23, 1998). See supra notes 138-140 and accompanying text.
The very essence of what we currently know about nature is that it is a “relentlessly dynamic,” stochastic system. This conception is incompatible with the old view of plans as “visions of an ideal future that, once achieved, would avoid the need for additional change.” Plans, whether they are HCPs, candidate conservation agreements, or 4(d) rules, must be “processes for adapting to change.”

Adaptive management is a term that seeks to capture the realities of modern, disequilibrium, probabilistic conservation biology. It responds to ecological characteristics by “[r]ecognizing that every land management practice is an experiment with an uncertain outcome.” In adaptive management, authorized activities are coordinated and monitored to determine their effects on biological integrity. The information gained then feeds back into the plan “to adjust management in a desirable direction.”

The “no surprises” HCP is a poor vehicle for this iterative planning. The most comprehensive study of HCPs to date, conducted by the American Institute of Biological Sciences and the National Center for Ecological Analysis and Synthesis, found insufficient

543. Noss et al., supra note 15, at 63.
545. Bosselman & Tarlock, supra note 544, at 860.
546. Id.
547. Noss, supra note 523, at 907. See also infra notes 556-557, describing adaptive management as based on feedback from continual management experimentation.
549. Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. at 35,256-57. Although the term “adaptive management” seldom appears in pollution control law, it is the basic model for such key programs as the state implementation plan in the Clean Air Act, discussed supra notes 468-481 and accompanying text. One of the benefits of employing cooperative federalism to recover species is that the ESA can borrow the best of the adaptive management model used in the Clean Air Act.
data to support the commitments in many plans. The report also found monitoring to be lacking or inadequate in many HCPs. The lack of important biological information needed to develop measures for species recovery led the report to conclude that the Services should adopt more flexible, adaptive management.

Other commentators, as well, view the no surprises policy as an impediment to needed adaptive management. Noss, O’Connell & Murphy, suggest that the real issue is the availability of federal funding to engage in the monitoring and adjustments (e.g., purchase of habitat in a different area or to provide a new corridor) that new information and circumstances demand. Because funds for federal agency conservation projects are always paltry, even in the recent era of budget surpluses, it would be wiser for the Services to assume that the federal government will not be able to fund adaptive changes to HCPs and therefore not commit the government to these future actions it has little hope of being able to achieve.

The 4(d) rule, in contrast, better facilitates the flexibility necessary to adjust the direction of a comprehensive, area-wide plan for recovery. The Services may revise the basic criteria for approving state/local plans and call for adjustments as new information arises. The call for modification of state plans is routine in the Clean Air Act SIP program and other pollution control programs employing cooperative federalism. While not popular with the states, the federal flexibility to require program changes is not fatal to the incentives for the states to participate in the program. The Administrative Procedure Act’s notice and comment rule-

551. Id. at 4.
552. Id. at 5. 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 and Wildlife Service, U.S. Fish and Wildlife Service’s Response to AIBS/NCEAS’s Study Using Science in Habitat Conservation Plans, at http://endangered.fws.gov/hcp/response.htm (last visited Oct. 4, 2001); Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35,242 (June 1, 2000).
making procedures would restrain the Services from making frequent, great, destabilizing changes. Most adaptive management modifications will be incremental adjustments. The literature on adaptive management stresses continuous or continual adjustment. Although this will likely create the need for more frequent modification of 4(d) criteria for state programs than occurs for most regulations, the changes will usually be gradual adjustments based on the feedback from monitoring existing programs, which serve as experiments. This is not very different from the long-standing administrative management principle of "muddling through." The gnatcatcher 4(d) rule requires semiannual reviews of state guidelines to determine whether modifications are necessary. Periodic review of MRCI development programs under the salmon 4(d) rule occur annually through reporting, with evaluations "at intervals not to exceed five years."

States and local jurisdictions implementing permit programs under a 4(d) rule to authorize activities that would not be considered a take, should look to the pollution control model for terms that allow for a flexible response to new information and changed circumstances. Unlike the incidental take permits excusing a Section 9 violation, the state 4(d) permit programs should employ "reopener" clauses and other conditions that permittees have accepted for decades in the pollution control context. A reopener clause allows a permitting authority, usually a state, to suspend a permit until an agreement can be reached about how to modify activities in response to a supervening federal standard or some

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557. Rebecca J. McLain & Robert G. Lee, Adaptive Management: Promises and Pitfalls, 20 ENVTL. MGMT. 437 (July 1996). Some experiments, however, may be large in scale, abrupt, and infrequent. For instance, the flood release from the Glen Canyon Dam has been described as an adaptive management experiment. Vicky J. Meretsky, David L. Wegner, & Lawrence E. Stevens, Balancing Endangered Species and Ecosystems: A Case Study of Adaptive Management in Grand Canyon, 25 ENVTL. MGMT. 579 (June 2000). In the case of salmon recovery, breaching a dam (or dams) on the Snake River would constitute such an experiment. However, the local programs authorized under a 4(d) rule will generally involve continual monitoring and incremental adjustment of ongoing programs of planning, regulation, and maintenance.
other recent development. Although the permitting authority has the power to suspend the permitted activity, the clause generally operates to bring the permittee to the negotiating table rather than to stop the permitted activity. Particularly since the duration of permits under a 4(d) program for development activities would likely be much longer than the duration of pollution control permits, the ability to reopen and adjust conditions will be critical to the success of recovery efforts.

Flexibility in management design, though it sacrifices some of the assurances that provide incentives for landowners to participate, can nonetheless offer strong incentives. The EPA's Project XL (which stands for "Excellence in Leadership") allows participating polluters to dodge some of the more onerous burdens of pollution control programs in exchange for a comprehensive environmental improvement plan yielding superior environmental performance. The EPA then monitors and evaluates the results.

561. While pollution control permits typically expire after five to ten years, HCPs for development activities may be 50-100 years in duration. Frances James, Lessons Learned from a Study of Habitat Conservation Planning, 49 BiorScience 871, 873 (1999). This puts incidental take permits in a category with federal permits to operate hydroelectric facilities, which may last 50 years. 16 U.S.C. § 799 (1994). The hydroelectric permits also contain a "no surprises" clause that prohibits the government from unilaterally changing in the terms of the permit. This guarantee is designed "to protect the licensee's investment and ensure economic viability and project profitability." Charles R. Sensiba, Who's in Charge Here? The Shrinking Role of the Federal Energy Regulatory Commission in Hydropower Relicensing, 70 U. Colo. L. Rev. 603, 617 (1999) (citing Southern Cal. Edison Co. v. FERC, 116 F.3d 507, 513 (D.C. Cir. 1997)). One reason for the HCP's affinity with hydroelectric licenses and difference from pollution permits is that the incidental take often involves a habitat disturbance (such as building a residential subdivision) at the start of the permit that endures for the long-term. In contrast, the activity usually authorized by a pollution control permit is ongoing and causes adverse modifications to the environment that dissipate relatively quickly after the activity abates. Patrick Parenteau recommends that the no surprises clause be replaced with shorter-term permits (not to exceed ten years) and "permit shield" provisions, like the ones found in pollution control statutes, that would protect from enforcement permittees complying with their permit. Parenteau, supra note 131, at 309. Clean Water Act Section 404 permits to discharge dredge or fill material often involve habitat losses (and mitigation) in wetlands similar to losses (and mitigation) that occur in incidental take permits. However, Section 404 permits typically involve an activity, the filling of a wetland, that occurs at one time and then is finished. Incidental take permits, sometimes fit that model but other times involve ongoing activities (such as forest management) that need a permit extending over many years. One enforcement concern with mitigation in Section 404 permits is that the permitted activity often finishes long before the permittee satisfies mitigation commitments.

562. The EPA explained that Project XL is designed "to give regulated sources the flexibility to develop alternative strategies that will replace or modify specific regulatory requirements on the condition that they produce greater environmental benefits." Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282, 27,282 (May 23, 1995). See generally,
of the improvement plan to guide further regulatory reform. Though most commentators agree that Project XL has not realized its promise, it is an important, ongoing attempt to apply adaptive management in a regulatory context. The Services should design their 4(d) programs to incorporate the experimentation of adaptive management into their regulations.

Another incentive in the comprehensive 4(d) rule that will counterbalance the loss of some of the assurances to participating landowners is the promise of "one-stop shopping." Instead of applying for both local land use permits and a federal HCP permit, landowners under a 4(d) rule will be able to concentrate on the single, integrated process under the local jurisdiction's Service-approved plan. In this way, the principle of cooperative federalism streamlines the procedure from the perspective of the permittee.

5. The 4(d) Rule Can Assure Open Public Participation

A common criticism of the HCPs is that they "are negotiated behind closed doors, and receive only superficial, after-the-fact


566. NOSS ET AL., supra note 15, at 40.

567. *Id.* (describing one of the incentives for private landowners in HCPs as "guarantees of streamlined regulations").
public comment."\textsuperscript{568} Permit applicants are understandably resistant to complicating and extending the negotiations for an HCP by including citizen representatives in the discussion. And, the Services require little more of the HCP development process than a statutorily mandated period for the public to comment on a notice in the Federal Register indicating that a permit application has been made.\textsuperscript{569} Because the framework, and frequently the details, of the HCP are worked out before the permit application is made, public comment occurs too late to be useful.\textsuperscript{570} By the time the Services publish notice of the application with the draft HCP, Service staff and the applicants have already invested too much time, money, and political capital to be receptive to major changes.\textsuperscript{571}

In the most comprehensive analysis of public participation in habitat conservation planning, a University of Michigan study found that groups representing environmental, Native American, and commodity interests were involved in only sixty percent of large HCPs.\textsuperscript{572} And, when they were involved, the late timing of their involvement reduced their influence.\textsuperscript{573} Of course, it is in the large HCPs where public participation is most critical to the success of the program. Without public support, it would be difficult to incorporate habitat conservation commitments into land use policies.\textsuperscript{574} In addition, the Michigan study notes that the terms of a large-scale plan are improved through early public participation because outside stakeholders bring to the negotiations key information and creative ideas for compromise.\textsuperscript{575}

The 4(d) rule can and should widen public participation. The


\textsuperscript{569} 16 U.S.C.\textsuperscript{§} 1539(c) (1994). Typically, this comment period is used to meet NEPA requirements as well as the ESA mandate. David Bidwell et al., \textit{Process Components in Developing Habitat Conservation Plans}, 16 \textit{ENDANGERED SPECIES UPDATE} 90, 93 (1999). \textit{See Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process} 65 \textit{Fed. Reg.} 35,242, 35,256 (June 1, 2000) (extending the duration of the public comment period but not expanding opportunities for public participation).

\textsuperscript{570} ANDERSON & YAFFEE, \textit{supra} note 459, at 4, 17; Doremus, \textit{supra} note 568, at 713; Kostyack, \textit{The Need for HCP Reform}, \textit{supra} note 553, at 52.

\textsuperscript{571} ANDERSON & YAFFEE, \textit{supra} note 459, at 21-26; Doremus, \textit{supra} note 568, at 713.

\textsuperscript{572} ANDERSON & YAFFEE, \textit{supra} note 459, at 17.

\textsuperscript{573} \textit{Id.} at 17.

\textsuperscript{574} \textit{Id.} at 12-16.

\textsuperscript{575} \textit{Id.} at 12-16. \textit{See also} Doremus, \textit{supra} note 568, at 715.
criteria in 4(d) rules to determine the adequacy of state and local plans can address procedure, as well as substance. Indeed, cooperative federalism programs in the pollution control field frequently mandate that states put in place certain procedures for public involvement, as well as minimum pollution standards. The EPA requires state-authorized permitting processes, for instance, to include opportunities for public notice, comment, and (sometimes) hearings. The NCCP process guidelines provide for public participation in plan development but neither the salmon nor the gnatcatcher 4(d) rules require state or local governments to include the public in permit issuance.

The Services can improve on the tools that the EPA uses to promote greater and more fair citizen participation in state planning and permitting. Public notice, comment, and hearings tend to limit citizens to reacting to proposals already developed. Collaborative decision-making, or interactive participation, which includes stakeholders in "face-to-face problem solving," offers greater opportunities for creative public involvement. This is particularly true in planning, where panels or working groups may meet periodically to identify information needs, raise issues, propose new approaches, or monitor progress.

Another tool to assure open public participation that the Services should introduce into 4(d) rules is mandated information disclosure. As Professor Markell has discussed in the context of improving cooperative federalism for pollution control, a public scorecard and/or periodic reports on measures of performance

576. See, e.g., 40 C.F.R. § 70.7(h) (2000) (public notice, comment, and hearings for state Title V permitting under the Clean Air Act); and 40 C.F.R. § 124.10(a) (2000) (public notice, comment and review of draft permits for state pollution discharge elimination system permits under the Clean Water Act). The EPA revises these standards it imposes on states to provide public participation in order to improve citizen involvement. See, e.g. Amendments to Streamline the National Pollutant Discharge Elimination System Program Regulations: Round Two, 65 Fed. Reg. 30,899-890 (May 15, 2000) (establishing informal adjudicatory procedural standards in order to promote more public participation by "minimizing the activities for which legal counsel is required and expediting the permit review process such that citizen groups need commit fewer resources for shorter duration").


may invite greater public interest and, ultimately, involvement.\textsuperscript{579} The internet, already used extensively in the Tri-County Initiative and Model development to disseminate information and encourage public participation, is an excellent platform for establishing this public accountability.

The notice and comment rulemaking process through which the Services establish 4(d) standards provides a good opportunity for stakeholders to discuss their concerns and make suggestions. Many stakeholders and their interest groups have limited resources that prevent them from participating in every permit negotiation.\textsuperscript{580} However, the comprehensive rule that will guide the state permit program is a good, early bottleneck in the administrative process to secure terms that protect citizens' interests. Indeed, interest groups often make the implicit trade-off of accepting limitations on their ability to intervene in permitting decisions in exchange for clear, strict, regulatory standards that must bind all permittees.\textsuperscript{581}

A 4(d) rule offers an inherent advantage for citizen opportunities to shape the conservation program. Unlike a 10(a) permit, where outside groups are limited to commenting on the permit application, in the 4(d) setting such groups will have a double opportunity to influence the Service to strengthen protections. First, groups can comment on the 4(d) rule itself to advocate for specific, measurable standards. If the Service fails to respond adequately, the groups may seek judicial review. This is what the Washington Environmental Council has done with respect to the MRCI development considerations in the salmon 4(d) rule.\textsuperscript{582} Then, citizen groups have a second opportunity to influence the program through the Service when a local jurisdiction submits a proposal to qualify under the 4(d) rule. Citizen groups may then lobby the Service to apply strictly the standards in the 4(d) rule in evaluating the local package of controls. Again, judicial review would be

\textsuperscript{579} Markell, \textit{supra} note 166, at 99-108.

\textsuperscript{580} Doremus, \textit{supra} note 568, at 713, notes that "decentralization of permit decisions" makes public participation difficult.

\textsuperscript{581} James Salzman & J.B. Ruhl, \textit{Currencies and the Commodification of Environmental Law}, 53 \textit{Stan. L. Rev.} 607, 684 (2000) ("Environmental permitting regimes have been premised on a fundamental tradeoff in this respect: In return for the security of prescribed ex ante permitting standards (developed by the agency through public notice and comment rulemaking and applied to each applicant in a permitting proceeding), the public has yielded an equal seat at the permit negotiating table.").

\textsuperscript{582} See \textit{supra} note 370 and accompanying text for a description of the suit.
available to ensure that the Service meets its statutory and regulatory obligations for conservation. Of course, there are limits to how effectively citizens can compel strict Service implementation of ESA standards. We deal with that problem at V(B)(5).

6. The 4(d) Rule Clarifies What Activities the ESA Prohibits

As illustrated in Section III(C) of this article, discussing the definition of harm and the role of causation in takes, there remains great uncertainty in applying the prohibitions of ESA Section 9.\textsuperscript{583} Certainly, future litigation will resolve some of this ambiguity. However, policy making through the courts is itself an unpredictable and nonuniform exercise. The 4(d) rule offers an opportunity to specify for a particular area exactly what kinds of habitat modification will trigger liability.

The Services have agreed by policy since 1994 to identify activities that likely will, and will not, result in a take.\textsuperscript{584} However, this policy has proven difficult to implement for species with large ranges.\textsuperscript{585} Also, Service attention is often focused on other issues at the time of listing. Since a 4(d) rule will apply only to a single (or related suite of) species in a particular region, the Services should be able to clarify considerably what local activities will be prohibited. Rather than leave landowners wondering whether a particular habitat modification is foreseeable, whether it is "significant," whether it "actually" injures the species, or whether it "significantly" impairs the essential behavioral patterns,\textsuperscript{586} a 4(d) rule could specify activities, performance measures, and locations that require limitations to recover the species. Some 4(d) rules already do this.\textsuperscript{587} In addition, a 4(d) rule could clarify the indirect

\textsuperscript{583} See \textit{supra} notes 83–108 and accompanying text.

\textsuperscript{584} Notice of Interagency Cooperative Policy for Endangered Species Act Section 9 Prohibitions, 59 Fed. Reg. 34,272 (July 1, 1994).


\textsuperscript{586} 50 C.F.R. § 17.3 (2000) (defining harm).

\textsuperscript{587} See, e.g., 50 C.F.R. §223.202(a)(2) (2000) (specifying the exact distance a vessel or person must stay away from a Steller sea lion or rookery site). The NMFS' Citizen's Guide describes types of activities that \textit{may} result in salmon takes, but does not draw a precise line defining the limits. National Marine Fisheries Service, \textit{supra} note 369, at 5-6.
liability that courts are now just beginning to explore. Implementation of a 4(d) program will make the Services' 1994 policy more central to the success of the overall ESA program because local interests persuaded of the threat of Section 9 liability will have greater inducements to develop land use plans that qualify for a 4(d) limitation on take.

A 4(d) rule that employs cooperative federalism to approve state/local land use plans will create even greater certainty. Once the Service approves a state/local plan as complying with the 4(d) rule, then any activity conducted in compliance with the plan will be shielded from ESA Section 9 liability. Of course, some uncertainties may remain about what compliance with the plan entails. But, particularly for activities permitted under the state/local plan, there will be governmental approvals that will shield landowners from liability.

B. Objections to the Expanded Use of the 4(d) Rule

Of course, no program is perfect. The Section 4(d) tool certainly has its weaknesses, particularly in areas where there is no local administrative infrastructure to support land use controls that will conserve habitat. However, many of the objections to the use of the 4(d) rule can be overcome by selective use of the vehicle for recovery through cooperative federalism. We expect 4(d) to become the most important program over the next decade of ESA implementation, but we recognize that there will be circumstances where other programs, such as incidental take permitting, will be more appropriate. This section explores some general objections to and limitations on the widespread application of rule 4(d) to the problem of species recovery.

1. The 4(d) Rule Is Limited to Threatened Species

Though the 4(d) rule will never be available as a recovery tool for all species, there are sufficient threatened animal species to make the 4(d) rule an important and useful tool. Twenty-seven percent of listed animal species in the United States are threatened. The 4(d) rule, of course, is limited to that fraction of the

588. See 16 U.S.C. § 1538(g) (1994); see also supra notes 188-200; 207-217 and accompanying text.

list. Nonetheless, the fraction represents 136 species, a large number in and of itself. In that group of 136, there are likely many species (including thirty-nine percent of listed fishes and sixty-one percent of listed reptiles)\textsuperscript{590} that need the kind of comprehensive habitat conservation planning that a 4(d) rule would promote.

The decision whether to list a species as threatened or endangered is a difficult one to make given the continuum of relative risk of extinction. Although some listed species are misclassified, in general, endangered animals have smaller populations upon listing than threatened ones.\textsuperscript{591} One objection to extensive use of the 4(d) rule is that it might create an incentive for the Services to list or downlist a species as threatened in situations where the correct prognosis is endangered.

There are two responses to this objection. First, it is not at all clear that there is less protection available for a species listed as threatened even though it might meet the definition of endangered.\textsuperscript{592} Both categories of listed species are treated identically under the Section 7 duties. It is only under the Section 9 prohibitions that the Act distinguishes between the two categories. If the Services use the flexibility afforded by the Act in tailoring prohibitions for threatened species through comprehensive 4(d) rules, then there may be no disadvantage at all for a species to be listed as threatened. Though there is some question whether 4(d) protections may go beyond the scope of Section 9 prohibitions, they must meet the statutory requirement to promote recovery.\textsuperscript{593} And, the effectiveness of using cooperative federalism to plan for recovery may result in greater conservation success for threatened species.

Second, a strong incentive for the Services to list species as threatened may operate to get species listed earlier, while they are

\textsuperscript{590} Id.

\textsuperscript{591} Wilcove, supra note 32, at 92.

\textsuperscript{592} Under the Act, an endangered species is "in danger of extinction throughout all or a significant portion of its range" and a threatened species is likely to become endangered within the foreseeable future. 16 U.S.C. § 1532(6), (20) (1994).

\textsuperscript{593} See supra notes 500–511 and accompanying text.
less imperiled, rather than waiting until populations decline and habitat degrades to the very precipice of extinction. David Wilcove explains the poor record of recovering listed species by observing that the Services are not listing species soon enough: "If rare and declining species . . . were listed before they reached such low numbers, prospects for successful recovery would improve." The Services' austere funding levels for listing currently make earlier listing of species unlikely, as the Services' are overwhelmed with a backlog of extremely imperiled species. But, successful 4(d) pilot programs may make the listing program more attractive to Congressional appropriation committees. If more funding for listing created more flexibility in private land habitat management (through early threatened listings leading to comprehensive 4(d) rules), then listing may become a more popular budget item. Also, because states have shown a willingness to develop conservation plans in order to avoid an endangerment listing, they may be expected to pressure the Services for earlier listing and the Congress for the appropriations to get it accomplished.

2. The 4(d) Rule Will Make Listing More Burdensome

The 4(d) rule that promotes recovery through cooperative federalism is a much more complex regulation than the conventional, typically brief, 4(d) rule that sets out prohibited activities for threatened species. Cooperative federalism 4(d) rules will require an investment of additional federal funding. However, these monies will leverage far more resources to aid the Services' efforts to recovery species. Unlike many Section 4(f) recovery plans, the 4(d) rules will create mechanisms for implementation through existing state and local programs. And, developing a blueprint in a 4(d) rule for a cooperative agreement will channel money to state institutions, which is typically more popular in Congress than funding federal agency actions.

Moreover, it is important to note that the Services need not

594. See notes 532-541 and accompanying text.
595. Wilcove et al., supra note 32, at 92.
596. See, e.g., DOI and House Republicans Agree on ESA Listing/Habitat Cap, PUBLIC LANDS NEWS, June 9, 2000, at 6; Babbitt, supra note 39.
597. See, e.g. Blumm & Corbin, supra note 17, at 545-548 (describing Oregon's plan to conserve Coho salmon); supra Subpart V(2)(b) (describing Washington's efforts to conserve salmon).
promulgate 4(d) rules concurrently with listing.\textsuperscript{598} So, a policy emphasizing 4(d) programs would not delay the initial step establishing ESA protection for a species qualified as threatened. Indeed, for species listed by the FWS, initial listing of a threatened species without a 4(d) rule will typically establish more stringent prohibitions than a comprehensive 4(d) plan. This is because the FWS has a blanket rule extending all Section 9 prohibitions for endangered species to threatened species unless otherwise noted by regulation.\textsuperscript{599} Therefore, landowners and local governments controlling habitat of threatened species have an incentive to work with the Service to get funding and negotiate a 4(d) rule that will clarify and apply just those more finely tuned restrictions necessary for recovery. The NMFS should join the FWS by promulgating a blanket rule extending the endangered species prohibitions in Section 9 to threatened species in the absence of a special 4(d) rule.

3. The 4(d) Rule Abandons a Substantial Investment in HCPs

The Clinton Administration made a substantial commitment to building a strong administrative foundation for the development of HCPs. It trained Service personnel, invested political capital, developed regulations and a Handbook, and litigated cases all for the goal of establishing the HCP/incidental take permit as the flagship ESA program. Why resist this momentum and detour to a new program based on rule 4(d)?

Comprehensive 4(d) rules and HCPs are not mutually exclusive. There are many situations, such as endangered species conservation and rural area habitats where the HCP will be a more appropriate tool. Even for areas and species covered by a comprehensive 4(d) rule for recovery through cooperative federalism, there will be unanticipated circumstances calling for an exception to the approved state plan. The Services may have to limit the circumstances under which they will consider an incidental take permit to those situations where an applicant demonstrates that complying with a plan adopted under a 4(d) rule is not feasible. Nonetheless, the HCP will remain a vehicle for landowners in extraor-


\textsuperscript{599} 50 C.F.R. §§ 17.31 (for animals), 17.71 (for plants) (2000). See supra note 86 and accompanying text.
ordinary situations to opt out of the system. Still, though, many of the features of progressive 4(d) planning could be incorporated in HCPs. Though a less elegant vehicle, the HCP could, through administrative reform, incorporate aspects of cooperative federalism and mandates for recovery. However, reform seems unlikely considering how vehemently the Services have defended the current shape of the HCP program. Additionally, other weaknesses of HCPs, such as the limited Service control of the timing, size, and location of applications, are inherent in the statutory structure of Section 10.

4. The 4(d) Rule Fails to Promote Multi-Species Conservation

Certainly, long-term maintenance of biological diversity requires a systemic, landscape-level effort to conserve whole assemblages of species that interact in an ecosystem. Although the purpose statement of the ESA refers to the conservation of "ecosystems," the term appears nowhere else in the Act. The fact of the matter is that the ESA concerns itself with just one aspect of the biodiversity crisis, the emergency care of the most frayed edges of the biological web. It is unrealistic to expect the ESA to shoulder the entire burden of biodiversity conservation in the United States. So, while the objection is a legitimate concern, it is one that applies to all aspects of the ESA program.

There will be some opportunities to develop 4(d) rules that incorporate recovery programs for multiple species. However, the opportunities will be limited to situations where the overlaps between habitats, local jurisdictions, and land use challenges correspond closely. These conditions have been scarce in the experience with HCPs. We expect that these circumstances will be similarly rare for 4(d) rules. Nonetheless, California's experience with the Coastal Sage Scrub NCCP illustrates how a 4(d) rule can spur area-wide multi-species conservation.

However, the 4(d) rule we are proposing at least offers the advantage of starting a plan for a single species and then updating it to include other species. The relative flexibility of the 4(d) rule to

600. See, e.g., supra notes 517-520 and accompanying text. See also Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35,242 (June 1, 2000).
602. BEATLEY, supra note 454, at 202-203; NOSS ET AL., supra note 15, at 41.
modify plans and commitments to adapt to new conditions allows for growth into multi-species planning. It is better to develop an acceptable comprehensive plan for a single species and then expand it incrementally to more species than to load down the negotiations initially with a large number of species. The 4(d) rule should start with the easy species and expand when it can.

5. The 4(d) Rule Is Vulnerable to Weak Service Implementation

The most serious objection to the investment in an expanded cooperative 4(d) program is that it is vulnerable to the same basic weakness as the 10(a) permit program: lax Service implementation. Just as the Services have implemented the incidental take permits in a way that minimizes political resistance from property rights advocates and commodity interests, so we can expect the Services to respond in the same way to pressures in the 4(d) program. Like 10(a) implementation, 4(d) involves a great deal of scientific judgment and discretion, in which the Services have a great deal of latitude. Their track record in exercising that latitude reflects the caution of an agency with little political weight to resist economic pressures.

Skeptics will charge that 4(d) rules with few specific, measurable, objective standards for state program approvals will bend to the will of the state/local interests. Why should we expect the Services to insist on stringent conservation measures in program approvals under the 4(d) rules when the Services have failed to insist on stringent conservation measures in HCP approvals? This skepticism is particularly well founded given the common origins of both statutory provisions as release valves to prevent political pressure from destroying the Act in reaction to inflexible requirements.

603. Certainly, the EPA's implementation of cooperative federalism in pollution control suffers from the very deferential treatment of many aspects of state programs, especially permitting and enforcement. This is partly a consequence of the EPA's financial and political weaknesses in mounting a credible threat of withdrawing federal authorization of a state program. Markell, supra note 166. Nonetheless, we think it is fair to say that the federal oversight role has tended to bolster state environmental protection. See Esty, supra note 172.

604. See JEANNE NIENABER CLARKE & DANIEL C. MCCOOL, STAKING OUT THE TERRAIN: POWER AND PERFORMANCE AMONG NATURAL RESOURCE AGENCIES 107-125 (2d ed. 1996) (describing the weak political position of the FWS relative to other federal natural resources agencies).
Any response to this weakness must acknowledge that the Services are relatively weak players within the Beltway; certainly, they have not proven to be the zealous conservation advocates some supporters had hoped they would be. Nonetheless, the Act does confine lax administrative discretion. Section 4(d)'s recovery mandate establishes a higher floor for protection of species than does Section 10(a). Moreover, because Section 4(d) requires the Services to proceed via rulemaking to establish species- and location-specific standards to determine what state/local programs will qualify, there is an additional opportunity for public and judicial scrutiny that does not exist for Section 10(a) permits. Just as courts have remanded inadequate recovery plans, courts could be expected to remand gnatcatcher-like rules that fail to require progress toward recovery.

One prerequisite for strong implementation of a cooperative, comprehensive, conservation 4(d) rule is good-faith participation from states and local jurisdictions. As we have noted throughout the paper, in many land use settings, the causative connection between development and habitat degradation actually injuring wildlife is so attenuated as to raise only a trivial threat of liability. Though the Services seldom prosecute such cases, they can spur conservation in some instances by threatening suits. Citizen plaintiffs seeking to enforce the take prohibition face difficult burdens of proof without the deference enjoyed by expert Service determinations of what level of habitat alteration constitutes harm for a particular species. Nonetheless, as the Strahan case illustrates, citizen suits can impose indirect liability on states. Also, a well written 4(d) rule will clarify what activities will likely cause takes. This step alone will provide a firmer basis for citizen suits and may alert some local governments that would not oth-

605. Id.
606. See supra note 28 and accompanying text. The Clinton Administration's abandonment of its ill-conceived Proposed Rule Exempting Certain Small Landowners and Low-Impact Activities from Endangered Species Act Requirements for Threatened Species, 60 Fed. Reg. 37,419 (July 20, 1995), suggests that the 4(d) process is not simply an open door for biological compromise on politically unpopular restrictions.
607. See supra note 49 and accompanying text.
608. 50 C.F.R. § 17.3 (1999). See discussion supra at IV(B)(2); V(B)(2)(a); V(B)(2)(c) and accompanying text.
609. Strahan v. Coxe, 127 F.3d 155 (1st Cir. 1997); see also supra notes 188-199 and accompanying text.
610. See supra note 217.
erwise be concerned about habitat modification to the problems posed by inadequate land use controls.

More generally, there are three reasons why, despite some vulnerability to weak implementation, the cooperative 4(d) rules we promote offer a promising new development. First, though connecting habitat alteration through land use to prohibited take is difficult under any circumstance, it is less difficult to establish in the aggregate than at the margins. Individual, piecemeal reduction in habitat quality, for instance, may be difficult to connect to falling populations. However, within a drainage, which might fall inside a political jurisdiction, the overall habitat available for, say, breeding can be linked directly to a species well-being. The 4(d) focus on local governments with regulatory (especially permitting) systems already in place over a significant portion of a threatened species range allows the 4(d) rule to draw a boundary line around an area that will facilitate monitoring.

Second, for local governments that are interested in planning for water quality, park networks (often inaptly called "greenways"), or even species protection, a 4(d) program would provide political cover. These jurisdictions (which might include Austin, Texas; Pima County, Arizona; and King County, Washington) can justify improvements to their regulatory regime by blaming the ESA for requiring better planning and land use controls. After all, comprehensive planning is good for conservation of a wide range of resources local governments care about, not just listed species. And, local land use plans operated in cooperation with a federal program are more likely to receive federal grants.

Third, individual landowners, where they must secure local permits anyway, might support the added security of protection from potential, though unlikely, federal liability. The cooperative 4(d) rule enables those local permits to provide a safe harbor from

611. See generally Brian Czech et al., Economic Associations Among Causes of Species Endangerment in the United States, 50 BIOSCIENCE 593 (2000) (finding sprawl development, generally, to be an important threat to biological diversity).

612. It is this advantage of comprehensive conservation (see discussion supra at VI(A)(3)) that allows the West Coast salmon 4(d) rule to employ the "properly functioning conditions" (PFC) measures to monitor conservation status. See supra note 358 and accompanying text.

613. John Kostyack argues that conserving listed species may lead to "more and better regional planning" that would also abate suburban sprawl and its attendant problems, such as traffic. John Kostyack, NWF v. Babbitt: Victory for Smart Growth and Imperiled Wildlife, 31 Envtl. L. Rep. (Envtl. L. Inst.) 10,712, 10,718 (2001).
Section 9 liability. Enough Section 10(a) permits have been issued to developers to demonstrate the existence of some incentive in the private sector to seek greater certainty of protection from federal liability. These private developers, who, under the current regime, apply for Section 10 permits, would benefit when their local governments receive authorization under a 4(d) rule that would streamline the development process. Instead of applying for both a local and a federal 10(a) permit, a developer in a jurisdiction running a program authorized under a 4(d) rule would need to apply only for the local permit.

VII. CONCLUSION

In comparing Section 4(d) to Section 10(a), we do not mean to suggest that the 4(d) strengths argue for the elimination of the 10(a) permit program any more than the advent of the 10(a) program led to the abandonment of the interagency coordination (consultation) that was the hallmark of the first era of ESA implementation. Rather, the strengths of the 4(d) rule position it to be the next flagship ESA program to further the goals of species recovery and biodiversity conservation.

Section 10(a) incidental take permits will remain important, especially for endangered species, which cannot be covered by a 4(d) rule. Even for threatened species, there will always be situations where fairness or effectiveness demand an exception to the general rules set out under a 4(d) protective regulation. However, the Services should shift from trying to use 10(a) as a vehicle for comprehensive conservation planning where they can instead employ comprehensive plans promulgated through a 4(d) rule.

To realize the full potential of Section 4(d) to promote recovery through cooperative federalism, the Services must carefully develop 4(d) rules in accordance with several principles. The most obvious principle that grows out of this study is that recovery, not "no jeopardy," must be the standard for approving 4(d) limitations on take. Furthermore, state and local programs that will qualify for the 4(d) take limitation should cover large areas that constitute significant portions of the threatened species' habitat. Without these two elements, the cooperative 4(d) approach offers little that the current incidental take permit program lacks.

The Services should, as clearly as possible, define what will or will not constitute a take. The more specific the Services can make
their descriptions, the more certainty property owners and local jurisdictions receive in exchange for their cooperation in the 4(d) program. The NMFS's Citizen's Guide, accompanying the final salmon 4(d) rule, takes a first step in this direction. It lists sixteen categories of activities, such as "constructing or maintaining structures like culverts, berms, or dams that eliminate or impede a listed species' ability to migrate or gain access to habitat," that are likely to constitute a take.\textsuperscript{2002} The salmon rule also describes activities that, though they may harm individual salmon, are not likely to incur take liability. These activities are controlled under environmental programs, such as pesticide regulation and effluent discharge permitting, already receiving Service scrutiny.\textsuperscript{615} Though this scrutiny falls short of the mark of recovery criteria, the framework providing a description of activities not likely to take under the 4(d) rule counterbalances the list of activities likely to take and forces the Service to set priorities.

The Services should encourage local jurisdictions to adapt land use controls to the needs of threatened species. Offsets and buffer areas are two versatile tools that the federal government ought to promote. The San Diego County subarea plan's mitigation requirements to offset habitat degradation are an example of local land use control that is both protective of habitat and specific in detailing what is expected of property owners. Also, the county's buffer zone restrictions on landscaping, structures, lighting, and fencing for land adjacent to preserves, respond well to the lessons of conservation biology. Permitting pursuant to state and local programs approved under a 4(d) rule with specific requirements such as these provides private landowners with a simpler path to compliance. Specific restrictions also establish an enforceable floor to ensure that development does not frustrate recovery.

The Services should, as clearly as possible, define the conditions for approval and revision of local plans under a 4(d) rule. The gnatcatcher rule abdicated this federal responsibility to state officials. Furthermore, while the gnatcatcher rule allows for modification of the state guidelines if they do not make progress toward the state objectives, the Service did not define what state objectives would be acceptable.\textsuperscript{616} In contrast, the salmon rule's use of

\begin{footnotes}{
\item[614.] National Marine Fisheries Service, \textit{supra} note 369, at 5-6.
\item[615.] Final Rule Governing Take of 14 Threatened Salmon and Steelhead Evolutionary Significant Units (ESUs), 65 Fed. Reg. 42,422, 42,473.
\item[616.] 50 C.F.R. § 17.41(b)(4) (2000); Special Rule Concerning Take of the Threatened
\end{footnotes}
the PFC (properly functioning condition) system to measure the natural habitat-forming processes necessary for recovery is an attempt to provide an objective benchmark for evaluating local plans. Coupled with the other MRCI criteria, the salmon rule better defines substantive standards for approval and revision of local plans.

However, the Services can improve the application of substantive standards in 4(d) rules. For instance, the MRCI development considerations should be binding. Also, when local plans are tiered to regional programs, such as the Tri-County Model or the CSS Regional Guidelines, the Services should condition approval of the regional programs on review of local ordinances to ensure that on-the-ground implementation actually fulfills the promise of the regional program. Defining approval and revision standards is a delicate task. The Services must balance the need for specific criteria to bind local jurisdictions (and the Services) to the absolute requirement of recovery with the need for flexibility to allow local jurisdictions to adapt conservation criteria to local circumstances. The MRCI development criteria come closest to striking this balance than any other 4(d) provision. Still, there is ample potential for improving future 4(d) rules.

The Services should ensure that local jurisdictions seeking to implement programs under a cooperative 4(d) rule have the administrative resources to do so fairly and effectively. The Services should require local governments to have sufficient enforcement authority, an enforcement program, opportunities for public intervention, and sufficient agency staff and funding. Neither the salmon nor the gnatcatcher rule directed sufficient attention to this area, which is critical in transforming a good paper plan into real changes in behavior. The Seattle response to the salmon listing illustrates the kind of commitments the Services should require of states and local governments. However, Congress will need to provide greater federal funding for state and local governments to help them meet their administrative burdens. Without federal monies commensurate with those provided to states to


618. See supra notes 358-365 and accompanying text.

619. See supra notes 442-446 and accompanying text.
administer pollution control programs, cooperative federalism will not work as well in the species conservation arena.

Adaptive management, which requires establishing measures of progress, monitoring those measures, and periodically revising plans accordingly, has become the Services' standard for handling the inherent uncertainties in conservation biology. The Services should continue to refine this experimental approach, which demands their continued vigilance in supervising local implementation. Promised monitoring in environmental law often fails to materialize as new programs and initial approvals preoccupy scarce agency resources. Therefore, monitoring must be a key requirement, enforceable by citizen suits. Service authority to require revision of state programs in response to changed circumstances or new information must be matched with local authority to reopen permits to adjust to revised plans.

The Services should ensure that the public has an opportunity to shape local plans. To some extent, this is built into the notice and comment requirements of promulgating a 4(d) rule. However, because the 4(d) rules will often leave key aspects of the conservation program to the discretion of local jurisdictions seeking to tailor measures to local circumstances, the Services must require local program development to include opportunities for meaningful public participation.

The Services should ensure that local jurisdictions have access to the same level of good science that the Services employ in developing 4(d) rules. The NCCP Scientific Review Panel established a firm foundation for the coastal sage scrub Conservation Guidelines, which shaped the comprehensive plans for habitat protection. In addition to the development of plans, scientific expertise should be deployed in other aspects of the cooperative scheme. The Washington Salmon Recovery Funding Board's use of a technical review team to help set funding priorities is a good example of the use of scientific expertise in an ongoing process.

The ESA program has outgrown the traditional conservation law tools of federal interagency coordination and impact analysis. These tasks remain essential. However, the emergence of incidental take permitting in the 1990s marked an important shift toward

620. How the NCCP Pilot Program Began, supra note 281; Welner, supra note 252, at 344; Conservation Guidelines, supra note 275, at Introduction.
621. See supra notes 389-397 and accompanying text.
the regulatory tools of pollution control law. It is time to foster further transformation in the ESA program to take better advantage of the full range of tools developed in the pollution control area.

Cooperative federalism, despite its flaws, offers a tremendous opportunity for the Services to make significant progress toward recovery. The conservation imperative of comprehensive planning requires the Services to enlist the help of state and local jurisdictions with the authority, experience, and desire to incorporate species recovery needs into land use controls. The initial experiments with plans for the coastal California gnatcatcher and the Puget Sound salmon establish a basis for improving the framework for 4(d) rules. State and local governments, facing both the danger of indirect liability and the prospect of greater local tailoring of regulation, are eager for partnership with the Services.