

Reforming the California Endangered Species Act

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I. INTRODUCTION

California is a national and global hotspot for biodiversity, with more species than any other state in the United States and nearly one-third of all species in the United States.¹ However, California is not exempt from the global biodiversity crisis; globally, twenty-five percent of species are facing increased risks of extinction because of human impacts² – thirty percent of California’s species face extinction.³

California also has a reputation as a leader in environmental protection. In the past twenty years, the state has enacted and implemented an ambitious framework to address climate change, including an economy-wide cap-and-trade program. This accomplishment is all the more significant given California’s status as the fifth largest economy in the world.

Consistent with its status as a global hotspot and as a historic leader in environmental protection, The California Endangered Species Act (CESA) serves as one of the most significant state-level endangered

¹ See, Biodiversity – The Variety of Life on Earth, CAL. DEP’T OF FISH AND WILDLIFE (2021), <https://wildlife.ca.gov/Biodiversity> (last visited June 6, 2021); California Executive Department, A Charter to Secure the Future of California’s Native Biodiversity (Sept. 2018), <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=174237&inline>.

² Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Global Assessment Report, Summary for Policymakers p. 11-12 (2019).

³ BIODIVERSITY, <https://wildlife.ca.gov/Biodiversity> (last visited Apr.18, 2021).

species laws in the United States.⁴ But despite the state's aggressive efforts in the context of addressing the climate crisis, the state has been relatively quiescent in legislative efforts in the context of biodiversity, despite the growing biodiversity crisis that affects the world and California. The basic framework of CESA has remained unchanged since the late 1990s,⁵ and there has been little sustained academic or policy attention to CESA in well over a decade.⁶ This lack of action on CESA stands in sharp contrast with recent proclamations by the administrations of Governors Brown and Newsom about the importance of prioritizing biodiversity protection in California.⁷

California's natural and human systems are increasingly being impacted by climate change.⁸ Historic droughts and fires are reshaping ecosystems.⁹ A statewide housing crisis is creating calls for greater housing production, potentially placing pressure for development of habitat.¹⁰ And the outgoing Trump Administration highlighted the risk for the state of federal retreat in the context of environmental regulation more generally and biodiversity protection specifically. These challenges and more emphasize the need for a reexamination of CESA, and a map for how to overhaul the statute to face the challenges of the twenty-first century.

This Article provides that reexamination and an overview of policy options that the legislature could consider to revitalize CESA. It articulates a range of changes – from clarification of key provisions of the Act ensuring effective biodiversity protection to advancing greater cooperation with and support for the landowners whose land management is essential for protecting ecosystems and species. It also advances a greater emphasis on the protection of ecosystems that are needed for biodiversity protection.

Biodiversity protection in California covers a wide range of laws and policies. Protecting biodiversity effectively in the state requires addressing climate change, protecting a broad range of habitat, protecting flows in streams and rivers for fish and aquatic ecosystems, improving management of state and federal public lands, managing the impacts of a century of fire suppression, and more. However, this Article focuses on CESA and related laws that directly address the protection of particular species or ecosystems that are identified as at risk – what has historically been the core of legislative efforts to protect biodiversity.¹¹ This

⁴ See *infra* Part I.B.2.

⁵ See CLARK MORRISON AND SCOTT B. BIRKEY, NATURAL RESOURCE REGULATION IN CALIFORNIA: A PRACTICAL GUIDE TO AGENCY PERMITTING AND PROCEDURES 142-45 (1st ed 2019). There have been a range of focused amendments to the statute since the 1990s, including the enactment of safe harbor provisions, see *infra* notes []-[], and accompanying text, and the enactment of provisions setting fees for CESA permits, see notes []-[], *infra*. There have also been other statutes enacted since the 1990s that advance the biodiversity goals of CESA that I discuss in the Article, see *infra*, e.g., Part I.A.5. And there have been many changes to the implementing regulations over the years.

⁶ See *infra* Part I.B.1.

⁷ See, e.g., California Executive Department, A Charter to Secure the Future of California's Native Biodiversity (Sept. 2018), <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=174237&inline>; California Executive Department, Executive Order B-54-18 (Sept. 7, 2018); California Executive Department, Executive Order N-82-20 (Oct. 7, 2020) (calling for efforts to protect California's biodiversity, including conservation of at least 30 percent of state lands and waters).

⁸ See STATE OF CALIFORNIA, FOURTH CLIMATE CHANGE ASSESSMENT (2019), <https://www.climateassessment.ca.gov/>.

⁹ See LOUISE BEDSWORTH, DAN CAYAN, GUIDO FRANCO, LEAH FISHER, & SONYA ZIAJA. STATEWIDE SUMMARY REPORT. CALIFORNIA'S FOURTH CLIMATE CHANGE ASSESSMENT, at 9, 28-30 (2018), https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

¹⁰ See Moira O'Neill, et al., *Developing Policy from the Ground Up: Examining Entitlement in the Bay Area to Inform California's Housing Policy Debates*, 25 HASTINGS ENVTL. L.J. 1 (2019).

¹¹ Accordingly, I will not cover statutes that provide protection for a broad category of ecosystems or habitats – including state and federal protection of wetlands; state protection of instream flows for native fish downstream from dams, Cal. Fish & Game Code § 5937; regulation of timber harvesting to protect habitats and wildlife under the California Forest Practice Act, Cal. Pub. Res. Code § 4511 et seq.; and legislation governing the management of state parks. Of course, some of these statutes have been essential for advancing biodiversity; Section § 5937 for instance has been the prime driver for the restoration of functional ecosystems and native fish species to the San Joaquin River. See Stipulation of Settlement, at 4, *Natural Resources Defense Council v. Rodgers*, Civ. No. S-88-1658 – LKK/GGH (N.D. Cal. Sept. 13, 2006). In addition, I do not cover legislation that is not focused on species or ecosystems that are under threat, but instead is focused on managing the harvest or use of species for human benefit, such as legislation governing commercial and recreational fisheries or hunting.

is not to minimize the broader range of legislation and policy essential to biodiversity protection. My focus in this Article on CESA and related statutes allows for a deep dive on how those laws operate and how they can be improved. Still, as the state government implements Governor Newsom's push for advancing biodiversity protection in California, it should look more broadly than the scope of this Article. In other words, the analysis in this Article is necessary, but not sufficient, to advance biodiversity protection in the state.

The policy options outlined in this paper do not necessarily provide a complete, take-it-or-leave-it package of proposals. Many of the proposals could be adopted individually and would have beneficial effects on their own. Some are best matched with other proposals, as indicated in their descriptions. Political feasibility and administrative and budgetary capacity likely mean that some proposals are only feasible down the road, or as part of a larger overall package deal. But by providing a menu of choices, this Article seeks to facilitate work by the Legislature and the relevant Executive agencies to improve CESA.

In developing the policy options for this Article, I have drawn on some key themes that I believe are crucial to advancing effective biodiversity protection in California – themes that I develop based on the past assessments of CESA and current assessments of the operation of the federal ESA. First, there is the importance of ensuring uniform and effective protection for the full range of biodiversity in the state, including invertebrates and plants. Second, there is the importance of providing for early intervention to protect species and ecosystems before they are on the edge of extinction, which can provide for more effective conservation at lower cost and disruption. This will require substantial investments in upfront data collection, analysis, and planning to support biodiversity protection. Third, there is the need to provide greater certainty and incentives for private landowners such that they are more willing to become affirmative partners in biodiversity conservation – in part, because active management by private landowners is needed for effective conservation. The second and third themes are in many ways intimately connected – earlier intervention that is focused more on ecosystems than on species can also allow for more predictable, more streamlined, and clearer regulatory systems, all of which can benefit landowners. Fourth is the need to advance recovery, the affirmative restoration for already endangered species and ecosystems, such that species and ecosystems do not linger on the edge of the vortex of extinction – the longer that species linger on that edge, the higher the risk that they will go extinct. Fifth is the importance of allowing biodiversity protections to update quickly based on new scientific information about the status of species and ecosystems and the threats they face – while also providing resilience in the regulatory system to respond to political pressures, whether at the state level or the federal level.

Part II of this Article provides an overview of CESA and the related state laws that seek to protect and restore biodiversity in California. Part I also provides a review of the literature that has discussed the effectiveness of CESA and those related statutes, a comparison of CESA with other state endangered species laws, and a brief assessment of how CESA operates today.

Part III provides a summary of the recent academic literature assessing the operation of the federal Endangered Species Act (ESA) as a way of understanding what the primary issues are for biodiversity protection in the United States. Given the lack of recent assessments of CESA or data on the implementation of the statute, I draw on assessments of the federal ESA because it is the most similar and most robust biodiversity protection statute, and because there is an ample literature examining the federal ESA. Part II highlights the key themes relating to prioritizing which species to protect, advancing cooperation with private landowners, protecting ecosystems as well as species using proactive adaptive management principles, advancing the recovery of endangered species in addition to preventing extinction, addressing the challenge

The distinction I am drawing here is similar to the course/fine filter distinction used in conservation biology for a few decades, where “coarse filter” protections focus on landscapes and habitat types, and “fine filter” protections focus on particular species in need for additional protection. See Reed F. Noss, *From Plant Communities to Landscapes in Conservation Inventories: A Look at the Nature Conservancy (U.S.A)*, 41 *BIOLOGICAL CONSERVATION* 11 (1987). My focus here is on the “fine filter” level of protection.

of climate change, managing the role of politics, and considering increased roles for states in biodiversity protection.

Part IV provides the menu of policy options the state could consider in overhauling CESA and related laws. It follows the basic structure of CESA – identify ways in which the statute could better identify the species that warrant protection (listing), advance the recovery of endangered species, regulate take or harm of endangered species and their habitat, ensure that state government actions do not jeopardize the existence of listed species, provide greater ecosystem-level management, and address issues relating to enforcement, funding, and compliance.

II. OVERVIEW OF THE CALIFORNIA ENDANGERED SPECIES ACT AND RELATED STATUTES

This article will begin with an overview of the basic provisions of the CESA in order to provide context for reform proposals. Because CESA operates closely with other major state laws that are focused on biodiversity protection, I will also provide brief summaries of those laws – specifically the Natural Community Conservation Planning Act (NCCPA); AB 2087, which provides for landscape level planning for mitigation of harm to endangered species; state laws that provide for full protection for particular species; state laws protecting plants; and the California Environmental Quality Act (CEQA). I will also provide an overview of the major critiques of the operation of CESA from past scholarship and policy analyses.

A. *Legal Structure of CESA and Related Statutes*

1. California Endangered Species Act

While CESA has origins in state laws enacted in the mid-twentieth century, the current framework for the statute emerged from a major overhaul in 1984; there have been several significant amendments to the law since then.¹² CESA generally mimics the federal Endangered Species Act in its structure. Like the ESA, CESA has a process for identifying species that warrant protection under the Act (the listing process); like the ESA, CESA prohibits take of individual members of listed species (the take prohibition); and like the ESA, CESA provides for permits to allow take in specific circumstances. However, CESA differs significantly from the ESA in how it addresses negative impacts to species from action by government entities, and in important details with respect to the operation of the take prohibition and exemptions.

a. Listing

Species are identified for protection under CESA through a listing process by which species can be listed as either endangered or threatened. Endangered species are species that are “in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.”¹³ Threatened species are species that “although not presently threatened with extinction, [are] likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required” by CESA.¹⁴

Species that can be listed under the statute are any “native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant.”¹⁵ Fish is defined elsewhere in the Fish and Game Code to include invertebrates,

¹² See MORRISON AND BIRKEY, *supra* note 5, at 142-45.

¹³ CAL. FISH & GAME CODE § 2062.

¹⁴ *Id.* § 2067.

¹⁵ *Id.* § 2062, 2067.

but the definition does not explicitly include terrestrial invertebrates¹⁶ – an issue that is currently in litigation is whether terrestrial invertebrates can be listed under CESA.¹⁷

Under the federal ESA, species can be listed for protection if they are “distinct population segments” (DPS) of vertebrate fish or wildlife which interbreed when mature – in other words, under the federal ESA, populations of species may be listed as endangered or threatened even if they do not qualify as a subspecies.¹⁸ While there is no explicit authorization in the text of CESA for the listing of DPS, California courts have deferred to the agency’s interpretation of the meaning of “species or subspecies” to include populations of species that warrant listing, at least in the context of populations of anadromous fish species.¹⁹

In considering “range” in determining whether a species should be listed under CESA, California courts have also upheld agency interpretations that allow the listing of species because they are threatened or endangered only in their range within California, as opposed to its worldwide range.²⁰ Thus, a species that is rare in California, but common globally, might still be listable under CESA.

Listing decisions under CESA are made by the California Fish and Game Commission (Commission), though implementation and enforcement of CESA is undertaken by the California Department of Fish and Wildlife (Department). All listing decisions by Commission must be based “solely on the best available scientific information.”²¹

Listing can occur by the Commission on the initiative of the Department, or in response to a petition from any individual.²² Filing of a petition triggers a process by which the Department is required to report, within ninety days, on whether the information within the petition constitutes sufficient information that the petitioned action “may be warranted” such that the Commission should fully consider the petition;²³ the Commission then must consider the petition in a public hearing, and determine whether the petition contains sufficient information such that the listing or de-listing action “may be warranted.”²⁴ If the Commission accepts a listing petition as meeting the “may be warranted” standard, then the petitioned species is declared a “candidate species” that receives protections under CESA, most importantly take protections.²⁵

For candidate species, the Department must conduct a status review within 12 months (with a six month possible extension) of relevant information for the petitioned species and the proposed action, including peer review of the status review;²⁶ the review determines whether the proposed action is warranted.²⁷ The Commission then considers the Department’s status review in a public hearing, and determine whether the

¹⁶ *Id.* § 45 (“‘Fish’ means a wild fish, mollusk, crustacean, invertebrate, amphibian, or part, spawn, or ovum of any of those animals.”).

¹⁷ *See* Almond Alliance of Cal. v. Cal. Fish and Game Comm’n, Verified Petition for Writ of Mandate, Case No. 24-2019-80003216 (Cal. Superior Ct. Sacramento County, Sept. 9, 2019); <https://news.bloomberglaw.com/environment-and-energy/are-bees-fish-the-courts-may-have-to-decide-in-california>. *See also* 81 Ops. Cal. Atty. Gen. 222 (1998) (concluding that terrestrial insects cannot be listed under CESA).

¹⁸ 16 U.S.C. § 1532(16) (defining species to include “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature”).

¹⁹ Cal. Forestry Ass’n v. Cal. Fish & Game Comm’n, 156 Cal. App. 4th 1533 1544-49 (2007) (upholding the listing under CESA of two “evolutionarily significant units” or populations of coho salmon runs).

²⁰ *Id.* at 1549-52.

²¹ CAL. FISH & GAME CODE § 2070.

²² MORRISON AND BIRKEY, *supra* note 5, at 148. The same is also true for proposals to de-list species.

²³ CAL. FISH & GAME CODE § 2073.5; *see also* MORRISON AND BIRKEY, *supra* note 5, at 153. A thirty-day extension for the report can be granted by the Commission. *See* CAL. FISH & GAME CODE § 2073.5(b).

²⁴ *Id.* § 2074, 2074.2; *see also* MORRISON AND BIRKEY, *supra* note 5, at 153-54. There has been substantial litigation around the exact standard encompassed by the “may be warranted” standard; two leading commentators have assessed the standard as “fairly low” in terms of the information required to meet it. *Id.* at 155; *see also* Natural Resources Defense Council v. Cal. Fish and Game Comm’n, 28 Cal. App. 4th 1104 (1994); Center for Biological Diversity v. California Fish and Game Comm’n, 166 Cal. App. 4th 597 (2008).

²⁵ The Commission can exempt the candidate species from take protections. CAL. FISH & GAME CODE § 2084.

²⁶ CAL. FISH & GAME CODE § 2074.4, 2074.6, 2074.8.

²⁷ CAL. FISH & GAME CODE § 2074.6.

proposed action is warranted.²⁸ The Commission's regulations state that a species "shall be listed as endangered or threatened . . . if the Commission determines that its continued existence is in serious danger or is threatened by any one or any combination of the following factors," which include "present or threatened modification or destruction of its habitat"; "overexploitation"; "predation"; "competition"; "disease"; or "other natural occurrences or human-related activities."²⁹ The Commission may delist if it finds that the species' continued existence is no longer at risk from one or more of these factors.

Ninety-three animal species are listed for protection under CESA,³⁰ and 222 plant species are listed for protection under CESA.³¹ Of these, only two state-listed animal species have been delisted for recovery, while two have been delisted because they went extinct.³²

b. Take Prohibition and Incidental Take Permits

Section 2080 of the Fish and Game Code has broad prohibitions on commerce in CESA-listed species, as well as a prohibition against "take" of CESA-listed species, both endangered and threatened as well as candidate species.³³ Take is defined elsewhere in the Fish and Game Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."³⁴ California courts have upheld the application of the take prohibition to actions that cause direct harm to a listed species, even if there is no intent by the actor to cause the harm to the listed species.³⁵ The take prohibition covers actions by private entities as well as public agencies.

Under the regulations implementing the federal ESA, which also has a prohibition on "take," the federal wildlife agencies have interpreted "take" to include modification to habitat for a listed species, if habitat modification "actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering."³⁶ This coverage of habitat modification is perhaps one of the most important applications of the federal ESA. However, CESA has no explicit coverage of habitat modification in its definition of take, nor do the implementing regulations.³⁷

²⁸ *Id.* § 2075, 2075.5. For a thorough overview of this complicated process, see MORRISON AND BIRKEY, *supra* note 5, at 157-161. Additional procedural requirements for the Commission can be found in 14 Cal. Code Regs § 670.1. In 2019, the Legislature eliminated the requirement that listing decisions go through review under the California Administrative Procedure Act. See SB 473, Stats. 2018, Ch. 329.

²⁹ 14 Cal. Code Reg. § 670.1(i)(1)(A).

³⁰ Cal. Nat. Res. Agency: Dept. of Fish and Wild., State and Federally Listed Endangered and Threatened Animals of California (2021).

³¹ *Id.*

³² *Id.*

³³ See CAL. FISH & GAME CODE § 2080 ("No person or public agency shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species."). These provisions are somewhat narrower than the very expansive commercial prohibitions in the federal ESA. Compare 16 USC 1538(a)(1).

³⁴ CAL. FISH & GAME CODE § 86.

³⁵ Department of Fish and Game v. Anderson-Cottonwood Irrigation District, 8 Cal. App. 4th 1554 (1992) (upholding the application of CESA's take prohibition to an irrigation facility whose pumps were entraining and killing endangered fish species).

³⁶ 50 C.F.R. § 17.3.

³⁷ For instance, a 1995 California Attorney General Opinion states that take under CESA required "direct harm" to a listed species. 78 Ops. Cal. Att'y. Gen. 137 (1995); see also MORRISON AND BIRKEY, *supra* note 5, at 162-63. A response to these arguments would rely on the requirements that incidental take permits must "fully mitigate[]" the impact of take, and that take for purposes of those permits "include all impacts on the species that result from any act that would cause the proposed taking." CAL. FISH & GAME CODE § 2081. These provisions can be understood as broadly including a wide range of harms within the take prohibition, at least with respect to the issuance of incidental take permits. See also Brad D. Kern, *Permitting the Take: An Analysis of Section 2018 of the California Endangered Species Act*, 8 N.Y.U. ENVTL. L.J. 74, 88 (1999) (noting this argument). For instance, if take kills an individual member of a CESA-listed species through the modification of habitat, then section 2081 would require mitigation of the habitat modification that caused the mortality. As a result, even if the take prohibition does not directly prohibit habitat modification, recipients of incidental take permits must mitigate any habitat modification.

CESA also allows the issuance of permits for the take of CESA-listed species in limited circumstances. The most important of those permits is the incidental take permit under Fish and Game Code Section 2081. To be issued, the applicant must demonstrate that the take is “incidental to an otherwise lawful activity,” that any impacts from the take will be “minimized and fully mitigated,” and the applicant has ensured “adequate funding” to implement minimization and mitigation measures, as well as monitoring for compliance and effectiveness.³⁸ No incidental take permit can be issued if the Department concludes that the permit “would jeopardize the continued existence” of the listed species covered by the permit.³⁹

Mitigation is limited to what is “roughly proportional” to the harm caused by the take, and need not cover the need to advance the overall recovery of a listed species or address the harm caused by other actions or actors.⁴⁰ Mitigation requirements also must “maintain the applicant’s objectives to the greatest extent possible.”⁴¹ Implementing regulations also require that any measure be “legally, technologically, economically, and biologically practicable,” which can be understood as imposing both a feasibility and efficacy requirement on mitigation measures.⁴²

Incidental take permits issued under the federal ESA provide an important protection for the permittee – once the permit is issued, the permittee will not be responsible for any additional regulatory requirements to protect the listed species covered by the permit, even if new information or unforeseen circumstances indicate that the impacts on the species are worse than expected.⁴³ This is called the “no surprises” policy, and it is intended to provide incentives for landowners to enter into permits under the federal ESA.⁴⁴ The Department cannot provide “no surprises” assurances to permit applicants for ITPs under CESA.⁴⁵ The relevant caselaw reached this conclusion on the grounds that the CESA ITP provision requires the permit holder to “fully mitigate[]” the impact from the permitted activity on the species – and “no surprises” might allow negative impacts to species without mitigation.⁴⁶

Parties that already have an incidental take permit under the federal ESA to provide authorization for take under that statute can apply for a “consistency” determination by the Department.⁴⁷ That process allows the Department, for species listed under both CESA and the federal ESA, to determine that the federal ESA ITP meets the standards of CESA, such that the federal ESA permit holder can also be given take authorization under CESA. One key issue that limits the number of consistency determinations that can be made by the Department are differences in the ITP standards between CESA and the federal ESA. The “fully mitigated” standard for CESA ITPs is in tension with the federal ESA ITP standard, which requires that ITPs must “minimize and mitigate” impacts to “the maximum extent practicable.”⁴⁸ Thus, the federal ESA has a

³⁸ CAL. FISH & GAME CODE § 2081(b) (2021).

³⁹ *Id.* § 2081(c).

⁴⁰ *Id.* § 2081(b)(2); see also *Envtl. Prot. Info. Ctr. v. Cal. Dept. of Forestry and Fire Prot.*, 44 Cal. 4th 459, 510-12 (2008) (making this point); MORRISON AND BIRKEY, *supra* note 5, at 164-65 (providing a fuller discussion of this issue).

⁴¹ CAL. FISH & GAME CODE § 2081(b)(2) (2021).

⁴² 14 CAL. CODE REGUL. § 783.4(c) (2021); see also *id.* § 783.4(a)(2) (“All required measures shall be capable of successful implementation”). For a full development of the complex process for the issuance of an ITP under CESA, see MORRISON AND BIRKEY, *supra* note 5, at 171-79.

⁴³ Habitat Conservation Plan Assurances (“No Surprises”) Rule, 63 Fed. Reg. 8859 (1998).

⁴⁴ *Id.*

⁴⁵ See *Envtl. Prot. Info. Ctr. v. Cal. Dept. of Forestry & Fire Prot.*, 44 Cal. 4th 459, 507, 511-14, 526-27 (2008); 14 CAL. CODE REGUL. § 783.6(c)(2) (2021). The implementing regulations for CESA permits require the Department to impose unilateral changes to permits “as required by law.”

⁴⁶ *Envtl. Prot. Info. Ctr.*, 44 Cal. 4th 459, 507, 511-14, 526-27.

⁴⁷ CAL. FISH AND GAME CODE § 2080.1 (2021). The consistency program also applies to incidental take statements issued pursuant to Section 7 of the federal ESA, which provides protections against Section 9 liability for actions that have undergone consultation pursuant to Section 7 of the ESA, discussed in the next section.

⁴⁸ Compare CAL. FISH & GAME CODE § 2081(b)(2) (2021), with 16 U.S.C. § 1539(a)(2)(B)(ii).

feasibility constraint on mitigation absent in CESA, and the Department may conclude that federal ESA ITPs do not provide sufficient mitigation to meet the CESA standard.⁴⁹

c. Policies for Government Actions

The federal ESA prohibits the federal government from taking any action that would “jeopardize the continued existence” of a listed species, or “adversely modify” critical habitat of a listed species.⁵⁰ The federal ESA also imposes a duty on federal agencies to conserve listed species, which is defined as restoring species such that protection under the federal ESA is no longer required.⁵¹

CESA does not have such a binding restriction on state or local government actions, but it does specify broader policies that apply to all government agencies. CESA states that it is the policy of the state “to conserve, protect, restore and enhance” listed species,⁵² with “conserve” defined to mean taking “all methods and procedures which are necessary to bring any [listed species] to the point at which [protection under CESA is] no longer necessary”;⁵³ that all “public agencies, boards, and commissions shall seek to conserve” CESA-listed species and “shall utilize their authority in furtherance of the purposes of” CESA;⁵⁴ and that “public agencies” should not approve projects that would jeopardize listed species or adversely modify their “essential habitat” so long as there are “reasonable and prudent alternatives” to those actions.⁵⁵

Much of this language overlaps with the requirements of Section 7 of the ESA, and also mimics the requirement in the ESA that federal agencies seek to conserve listed species. However, unlike Section 7 of the ESA, these CESA provisions are not explicitly binding on agencies, and therefore may not be judicially enforceable.

To help implement the recovery policies in CESA, the statute authorizes the Department to prepare “nonregulatory” recovery plans that would guide public and private actors in actions that can be taken to recover CESA-listed species.⁵⁶ Again, this mimics a provision in the federal ESA, but in the federal ESA, the federal wildlife agencies are mandated (not just authorized) to produce recovery plans.⁵⁷

2. Fully Protected Species

There are a range of species that are protected under California state law from take and possession, because they are specifically identified by name under various provisions of the state Fish and Game Code as fully protected species.⁵⁸ These statutory provisions were generally enacted in the 1960s as a first effort by the state legislature to protect species-at-risk.⁵⁹ Because they are statutory provisions, the Commission and Department have no role in listing or delisting species. While these species may have all been endangered at

⁴⁹ Specifically, CAL. FISH & GAME CODE § 2080.1 requires that the Department conclude that the federal permit is “consistent” with CESA. CAL. FISH AND GAME CODE § 2080.1(c) (2021). Frequently occurring issues that may produce a finding that the permit is not consistent with CESA include inadequate financial assurances for undertaking mitigation by the permittee or inadequate guarantees of compliance effectiveness or subsequent monitoring.

⁵⁰ 16 U.S.C. § 1536(a)(2).

⁵¹ *Id.* § 1536(a)(1).

⁵² CAL. FISH & GAME CODE § 2052.

⁵³ *Id.* § 2061; *see also id.* § 2079.1(a) (setting goal for non-regulatory recovery plans as the “conservation and survival” of listed species).

⁵⁴ *Id.* § 2055.

⁵⁵ *Id.*

⁵⁶ *Id.* § 2064.5. The authorization is subject to the proviso that funding is available for preparing plans. *Id.* The Department’s website does not list any current recovery plans prepared by the Department for any CESA-listed species.

⁵⁷ 16 U.S.C. § 1533(f).

⁵⁸ *See* CAL. FISH & GAME CODE §§ 3511, 4700, 5050, 5515.

⁵⁹ *See*, Habitat Conservation Planning Branch, Fully Protected Animals, CAL. DEP’T OF FISH AND WILDLIFE (2021), <https://wildlife.ca.gov/Conservation/Fully-Protected> (last visited Apr. 16, 2021) (giving history).

the time of their initial designation, at this point several are no longer listed for protection under the federal ESA or CESA. For instance, brown pelicans and peregrine falcons have both been delisted under the state and federal endangered species acts as recovered but remain fully protected species in California.⁶⁰

The courts have held that the incidental take permit provisions of CESA do not apply to these species.⁶¹ The primary way to gain authorization for take of these species is through the NCCPA,⁶² or through enactment of laws that specifically authorize take of protected species for particular projects.⁶³

3. Plant Protection Statutes

California has two statutes that focus protections specifically on plants: the Native Plant Protection Act (NPPA),⁶⁴ and the California Desert Native Plants Act (CDNPA).⁶⁵

The NPPA provides for the listing of rare and endangered native plants by the Commission.⁶⁶ Listed plants are protected against importation, take, possession, and sale.⁶⁷ However, unlike CESA, the NPPA provides large exemptions from its take prohibitions – including for timber harvesting, a range of construction activities, emergency work to protect life or property, and agricultural operations.⁶⁸ In many cases, landowners need only notify the Department of the proposed operation within 10 days to allow the Department to salvage the plant.⁶⁹

Moreover, the NPPA’s exemptions have an unclear relationship with the CESA take prohibitions. Section 2080 of CESA prohibits take of plants listed under CESA “except as otherwise provided” by other provisions of the Fish and Game Code, including the NPPA. A 1998 Attorney General opinion concludes that this language means that the NPPA provisions override the CESA take provisions for plant species listed under both Acts,⁷⁰ though this conclusion is contested.⁷¹ CESA take authorizations would also grant an exemption

⁶⁰ CAL. FISH AND GAME CODE 3511(b) (2021); see California Dep’t of Fish and Wildlife, State and Federally Listed Endangered and Threatened Animals of California 16 (April 2, 2021), available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline>.

⁶¹ *Id.* § 2835; see also *Ctr. for Biological Diversity v. Dep’t of Fish & Wildlife*, 62 Cal.4th 204, 233 (2015).

⁶² CAL. FISH & GAME CODE § 2835 (2021); MORRISON AND BIRKEY, *supra* note 5, at 528.

⁶³ *See, e.g.*, CAL. FISH & GAME CODE § 2081.4 (2021) (bridge reconstruction); *id.* § 2081.6 (2021) (river restoration); *id.* § 2081.7 (2021) (water rights settlement); *id.* § 2081.9 (2021) (road reconstruction project); *id.* § 2081.10 (2021) (water infrastructure reconstruction); *id.* § 2081.11 (2021) (dam removal); *id.* § 2081.12 (2021) (well construction). This has been an increasingly important approach, with three of these special statutes passed in the last five years. Permits can be issued for take of fully protected species by the Department for “necessary scientific research,” including recovery of the species. *See, e.g.*, FISH AND GAME CODE 5515(a) (fish). However, that provision cannot be used to authorize take for mitigation under CEQA, *see Ctr. for Biological Diversity v. Dep’t of Fish & Wildlife*, 62 Cal. 4th 204, 233 (2015), and would not be available for incidental take.

⁶⁴ CAL. FISH & GAME CODE § 1900 (2021) et seq.

⁶⁵ CAL. FOOD & AG. CODE § 80001 (2021) et seq.

⁶⁶ CAL. FISH & GAME CODE § 1901 (2021).

⁶⁷ *Id.* § 1908.

⁶⁸ *Id.* §§ 1912, 1913.

⁶⁹ *Id.* § 1913(c).

⁷⁰ 81 Ops. Cal. Att’y. Gen. 222 (1998).

⁷¹ *See* Emily B. Roberson and Tara L. Mueller, *California Listed Threatened and Endangered Plants Are Protected Under the California Endangered Species Act*, CALIFORNIA LAND USE LAW & POLICY REPORTER 7 (Sept. 1999); *see also* Robert B. Thornton, *et al.*, *Does Fish and Game Have the Authority to Require A Permit or MOU for the Take of Listed Plant Species in the Development of Private Property?* CALIFORNIA LAND USE LAW & POLICY REPORTER 173 (March 1999) (supporting the conclusion in the Attorney General opinion). Setting aside section 2080 of CESA, there are other aspects of the NPPA that would cut against reading the NPPA as overriding the take prohibitions of CESA. Because the NPPA does not have a threatened category, finding that the NPPA overrides the CESA take prohibitions might mean that species listed under the NPPA and as endangered under CESA would receive *less* protection than species listed only as threatened under CESA. No species have been listed under the NPPA since the enactment of CESA, and the NPPA has a different listing process than the CESA – raising questions about the extent to which NPPA listing should be seen as a substitute for CESA protection. In practice, the NPPA regulatory provisions are only applied with respect to rare plants that are not listed under CESA and have not been used to provide protection for co-listed CESA and NPPA species.

from NPPA take restrictions.⁷² The CDNPA protects certain desert plant species from harvest, transport, sale, or possession without a permit.⁷³ The protected species are identified as members of particular taxonomic groups, with some additional particularly identified species.⁷⁴ The protections only apply in specified counties.⁷⁵ The CDNPA explicitly provides that its provisions do not apply to CESA listed species⁷⁶ – thus, the confusion about the applicability of the CESA take prohibitions to NPPA listed species does not apply in this context.

4. NCCPA

The NCCPA was developed in the early 1990s to provide for regional-level planning efforts to reconcile development and biodiversity conservation.⁷⁷ The NCCPA was intended as a response to concerns that regulatory actions that focus on resolving conflicts over individual projects would be less effective than broader regional-level conservation planning that can account for many species and ecosystems as a whole.⁷⁸

The NCCPA authorizes the development of Natural Community Conservation Plans (NCCPs), which require a regional assessment of conservation needs within the planning area. NCCPs, like ITPs, can authorize the taking of species listed under CESA for actions that are consistent with the overall planning document. However, NCCPs are different in important ways than ITPs. First, NCCPs can protect against the taking of “fully protected species” which are protected separately from CESA as well as provide for protection of unlisted species should they be listed in the future under CESA.⁷⁹ Second, while there is controversy over whether CESA’s take provision covers habitat modification, NCCPs can be understood as protecting against any possible CESA liability for habitat modification.⁸⁰ Third, NCCPs has been interpreted by the Department to require plans to provide for the recovery of covered species, not just mitigate harms from specific projects like ITPs.⁸¹ Finally, NCCPs provide “no surprises” protections to permittees.⁸² These differences make NCCPs both more demanding, but also potentially more rewarding for permittees.⁸³

There are currently nineteen NCCPs that have been developed in California or are in the planning process – most of them are associated with local governments which use the NCCP process to facilitate planning and permitting for development projects within their borders.⁸⁴ NCCPs appear to be rarely used for individual, site-specific projects, perhaps in part because of the significant costs of preparing an application for one.

⁷² See MORRISON AND BIRKEY, *supra* note 5, at 226-27; 14 CCR § 786.9(b). Because species listed as rare under the NPPA are not listed under CESA, the CESA take provisions do not explicitly provide for take authorization for these species. Recent Commission regulations authorize the Department to grant take authorizations for species listed as rare under the NPPA.

⁷³ CAL. FOOD & AG. CODE § 80111(a). Permits are issued by the county agricultural commissioner or sheriff. MORRISON AND BIRKEY, *supra* note 5, at 228.

⁷⁴ *Id.* §§ 80072, 80073.

⁷⁵ *Id.* § 80003.

⁷⁶ *Id.* § 80075.

⁷⁷ MORRISON AND BIRKEY, *supra* note 5, at 518-19.

⁷⁸ For further discussion of criticisms of species- and project-based conservation efforts, see *infra* Part II.

⁷⁹ See CAL. FISH & GAME CODE § 2835, 2805(e).

⁸⁰ One argument for why CESA should be interpreted as covering habitat modification is the legislature’s enactment of NCCPs and their coverage of habitat modification, which otherwise would not be necessary.

⁸¹ See also MORRISON AND BIRKEY, *supra* note 5, at 527-28 (noting that Department guidance relies on the use of “conserve” in the NPPCA, with the same meaning as in CESA to mean recovery of a listed species).

⁸² CAL. FISH & GAME CODE § 2805(k), 2820(f)(2).

⁸³ NCCPs must meet other ITP requirements, including requirements for adequate funding, monitoring, and adequate mitigation. See *id.* § 2820(a) (requiring these provisions as part of the approval of an NCCP); *id.* § 2805(d) (requiring compliance with CESA ITP provisions).

⁸⁴ CAL. DEP’T. OF FISH & WILDLIFE, CALIFORNIA NATURAL COMMUNITY CONSERVATION PLANS (2019).

Table 1: Comparison of CESA ITPs and NCCPs

	CESA ITP	NCCP
Covers non-listed species	No	Yes
Covers fully protected species	No	Yes
Requires contribution towards recovery	No	Yes
Allows “no surprises” protections	No	Yes
Cover habitat modification	Unclear	Yes

5. AB 2087

Mitigation is central to permitting under CESA, the NCCPA, and a range of other federal and state environmental and biodiversity protection laws. Much mitigation also occurs “off-site,” or on a different property or location than the original project, with mitigation credits being transferred from the mitigation site to the permittee, allowing for compliance with mitigation requirements for a development project. This “off-site” mitigation can often be part of a broader regional, landscape, or ecosystem-based conservation or restoration program, and therefore may have some advantages over on-site, project-specific mitigation.⁸⁵

AB 2087 is an effort to facilitate mitigation by allowing for the creation of mitigation credits in advance that can quickly and easily be relied upon by permittees undertaking development projects within a particular region, landscape or ecosystem. AB 2087 allows public entities to establish Regional Conservation Investment Strategies (RCIS) which survey ecosystems, habitats, and species within a particular region or landscape and identify what actions would advance conservation or restoration of ecosystems, habitats or species within that region or landscape.⁸⁶ RCISs can then be the basis for approval of implementing actions that can also serve as mitigation credits under a range of regulatory programs – this approval can occur

⁸⁵ See *infra* note 85 and accompanying text. Off-site mitigation can also have disadvantages, including questions about how fungible or equivalent the mitigation actions at one location can be for the harms incurred at an entirely separate location.

⁸⁶ CAL. FISH & GAME CODE § 1852.

through a Mitigation Credit Agreement (MCA). Regulatory programs that can be covered by the MCA include NCCPs as well as state programs protecting lakes and streambeds, and CEQA.⁸⁷

The statute makes clear that RCISs and MCAs are not regulatory programs: they do not bind any landowners or public entities; no private or public party is required to comply with RCISs or MCAs in pursuing development projects or meeting compliance obligations under other statutes; and RCISs and MCAs do not amend or otherwise affect local land-use regulation or any state regulatory programs.⁸⁸ Approval of RCISs and MCAs is done by the Department⁸⁹ – similar to NCCPs and ITPs, there are requirements for monitoring, adaptive management, adequate funding, and ensuring the permanence or “long-term durability” of the actions that are the basis for mitigation.⁹⁰

Five RCIS proposals have been approved, while six more are in the approval process.⁹¹

6. California Environmental Quality Act (CEQA)

CEQA is probably the most important state-level environmental law in California. It applies to all state and local government agencies in the state, and requires those public agencies to conduct a thorough review of all “significant” environmental impacts of projects proposed by those agencies, and to mitigate to the extent feasible those impacts.⁹² CEQA applies not just to projects where the public agency will be doing the actions that will potentially affect the environment, but also to projects where the public agency is permitting a private party to take actions that will potentially affect the environment; thus, CEQA also applies to regulatory actions by agencies.⁹³

In the context of biodiversity protection in California, CEQA plays a key role in regulating impacts on biodiversity either from public agencies directly or by private actors undertaking actions regulated by public agencies.⁹⁴ In many ways, CEQA fills the role played by Section 7 of the federal ESA, which prohibits federal agencies from taking actions that would jeopardize the existence of listed species or adversely modify the critical habitat of those species. While CESA has no mandatory parallel provision, CEQA’s prohibitions on state agency actions from causing significant environmental impacts without feasible mitigation would generally prevent a state agency from causing jeopardy to a CESA-listed species and could prevent a state agency from causing adverse modification to a significant amount of habitat that is important for a CESA-listed species. Indeed, CEQA likely has a broader range of protections for harm from government action because the universe of “significant” impacts on endangered species and biodiversity (including habitat for endangered species) is certainly substantially larger than simply causing jeopardy to an endangered species or adversely modifying important habitat for that species.⁹⁵ CEQA also requires analysis and feasible

⁸⁷ *Id.* § 1856.

⁸⁸ *Id.* § 1855(a) & (c).

⁸⁹ *See id.* § 1854. For more details about the approval process, *see* MORRISON AND BIRKEY, *supra* note 5, at 530-39.

⁹⁰ *See* Cal. Fish & Game Code § 1852(d) (defining a “conservation action” as one that protects resources “permanently”); *id.* § 1851(g) (defining a “habitat enhancement action” to be an action with “long-term durability”); *id.* § 1852(c) & (e) (requirements for approval of RCIS); *id.* § 185 (requirements for approval of MCA). “Conservation actions” and “habitat enhancement actions” are the actions pursuant to a RCIS that can be used as the basis for mitigation credits through an MCA.

⁹¹ CAL. DEP’T. OF FISH & WILDLIFE, DRAFT AND APPROVED RCIS PROGRAM DOCUMENTS (2020).

⁹² *See* 14 CCR § 15002; Pub. Res. Code § 21002, 21151. Significant has a broad definition under the relevant regulatory definitions and includes “potentially substantial” environmental impacts.

⁹³ Pub. Res. Code §§ 21065(b) & (c); *see also* *Friends of Mammoth v. Board of Supervisors*, 8 Cal. 3d 247 (1972).

⁹⁴ CEQA also requires analysis and mitigation of a broad range of other environmental impacts, such as impacts on wetlands. Those components will also advance biodiversity protection, as noted above. However, here I will focus only on the provisions of CEQA that apply to particular species or ecosystems.

⁹⁵ CEQA’s implementing regulations requiring a finding of significant impacts if a project: “has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; [or] substantially reduce the number or restrict the range of an endangered, rare or threatened species.” 14 Cal. Code Reg. § 15065(a)(1).

mitigation for impacts to biodiversity beyond CESA-listed species, including harm to rare plant and animal species that are not listed under either the federal ESA or CESA.⁹⁶

Perhaps the largest difference between how Section 7 and CEQA protect endangered species from harm by government agencies relates to the ways in which the two programs allow government actions to proceed even if there is a risk of jeopardy or adverse modification. Under Section 7, federal actions can be modified through “reasonable and prudent alternatives” to avoid jeopardy or adverse modification; if such changes to the proposed federal action are not possible, then the only exemption available is a complicated exemption process that has almost never been used in over 40 years. Under CEQA, however, state and local agencies can adopt a “statement of overriding considerations” that allow an action to proceed despite unmitigated significant environmental impacts.⁹⁷

CEQA also applies to actions implementing CESA. CEQA is a requirement for the approval by the Department of ITPs as well as NCCPs,⁹⁸ and also for the listing and delisting of species under CESA.⁹⁹

B. Assessment of CESA and California’s legal system for protecting biodiversity

1. Historical scholarly analysis of CESA

Scholarly commentary on CESA is limited, and most of it is from ten or more years earlier. In general, that commentary has argued that CESA provides inadequate protections for endangered species, although some have also argued that CESA imposes too many burdens on landowners.

A primary theme of the literature has been that CESA does not adequately require state and local government agencies to reject projects that could jeopardize the existence of listed species. As noted above, Section 7 of the federal ESA does prevent federal agencies from taking actions that would jeopardize the existence of listed species. Until the late 1990s, CESA contained a similar provision, which was unsettled. Even when the consultation provision was in place, commentators criticized it as relatively weak. Lead agencies (the state agency undertaking the action in question) did not always pursue consultation, and, if they did, could ignore jeopardy findings by the Department, so long as the lead agency undertook mitigation measures.¹⁰⁰ Commentators also argued that the Department often had inadequate resources to respond to

⁹⁶ See MORRISON AND BIRKEY, *supra* note 5, at 213-14 (discussing protection of non-CESA-listed birds), *id.* at 217-19, 230-31 (discussing plants); *id.* at 256-57 (discussing rare species in general). The definition of “endangered” or “threatened” species for CEQA purposes includes CESA- and federal ESA-listed species. 14 Cal. Code Reg. § 15380(c). In addition, CEQA defines “rare” species as a species that “[a]lthough not presently threatened with extinction, . . . is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens.” 14 Cal. Code Reg. § 15380(b)(1).

⁹⁷ Public Resources Code § 21081. However, agencies required to do mitigation to the extent feasible, among other requirements. *Id.*

⁹⁸ See MORRISON AND BIRKEY, *supra* note 5, at 172-75, 530.

⁹⁹ *Mtn. Lion Found. v. Fish and Game Comm’n*, 16 Cal. 4th 105 (1997). Agencies may create “certified regulatory programs” that comply with CEQA’s procedural and substantive requirements through alternative processes that are built into the agency’s own regulatory program. CESA listing decisions qualify for this. *Id.*

¹⁰⁰ Lynn E. Dwyer and Dennis D. Murphy, *Fulfilling the Promise: Reconsidering and Reforming the California Endangered Species Act*, 35 NAT. RESOURCES J. 735, 747-48 (1995) (“Lead state agencies often fail to make species protection a priority and do not always consult with DFG when projects have an impact on threatened or endangered organisms.”); Donald M. Kelly and Julianne B. D’Angelo, *Near Extinction: California’s Protection of Endangered Species*, 10 CALIFORNIA REGULATORY LAW REPORTER 1, 4 (Spring/Summer 1990) (noting that the “lead agency may ignore the Department’s suggestions so long as it incorporates mitigation measures and it finds both that the project as proposed is of significant public benefit and that it has not acted in bad faith by infusing money into the project after DFG consultation has commenced”).

When consultation did occur, it rarely resulted in jeopardy findings. *Id.* at 3 (noting that in 1989 56 consultations occurred with no jeopardy findings); Dwyer and Murphy, *supra* note 100, at 752 (“Currently, most project modifications are made as a result of informal consultations. Jeopardy opinions are rarely issued.”).

consultation requests,¹⁰¹ and that the consultation process interacted awkwardly with CEQA review, producing confusion and redundant review.¹⁰²

With the repeal of the CESA consultation provisions, state and local agencies still may apply for ITPs under Section 2081 to avoid take liability, and also must participate in CEQA review and mitigation processes for impacts on endangered species. One author argued for the restoration of the CESA consultation process on the grounds that the ITP and CEQA processes were inadequate to provide for species protections.¹⁰³ According to this author, the ITP process can be (and has been) effectively ignored by state agencies because of limited Department enforcement and resources,¹⁰⁴ while the CEQA process allows agencies to ignore the comments of the Department with respect to endangered species¹⁰⁵ and to make “statements of overriding considerations” that allow them to ignore and not mitigate impacts on endangered species.¹⁰⁶ This commentator called for reinstating a consultation process that has stricter standards than the original CESA consultation process, but is more focused in its coverage.¹⁰⁷

Another major theme of criticisms of CESA, particularly in the 1990s, was that the law was too focused on protecting individual species, and protected those species too late, when they were already on the edge of extinction.¹⁰⁸ These critics argued for more holistic, proactive protections that focused on ecosystems as a whole, partly to avoid waiting until species were almost gone.¹⁰⁹ These critics argued that proactive protection would also reduce conflicts with landowners, as it would allow more flexibility in responses since more options for protecting species and ecosystems would be available. These criticisms often were connected with support for the development of NCCPs under the new NCCPA, which was seen as a response to these weaknesses of CESA.¹¹⁰ Some of these commentators also argued that CESA should provide for prioritizing

¹⁰¹ Dhananjay Manthripragada, *Species Protection Versus State Agency Autonomy: Who Wins Under the California Endangered Species Act*, 36 ENVIRONMENTAL L. REPORTER 10644, 10650 (2006); Dwyer and Murphy, *supra* note 100, at 748.

¹⁰² Dwyer and Murphy, *supra* note 100, at 751-52.

¹⁰³ See Manthripragada, *supra* note 101, at 10650.

¹⁰⁴ *Id.* at 10651 (stating that the CESA ITP provision “does not require the use of project alternatives to avoid take altogether” and does not require state agencies to provide for recovery); *id.* at 10649-50 (citing examples of state water agencies ignoring CESA ITP process for endangered fish species in early 2000s as a reason for a consultation process with real substantive requirements).

¹⁰⁵ *Id.* at 10646.

¹⁰⁶ *Id.* at 10649 (“CEQA mitigation for loss of sensitive species and habitats, however, is not mandatory, making it a ‘dull knife’ when it comes to protecting essential habitat that may be affected by a project.”). Manthripragada also notes that CEQA does not have a specific provision prohibiting jeopardy. *Id.* (“CEQA does not impose special obligations on a lead agency to guarantee that proposed projects do not jeopardize the survival of listed species.”).

¹⁰⁷ See *id.* at 10651-52 (calling for a revised consultation process that has a stricter substantive standard, barring projects that would be “likely to jeopardize the recovery” of a species, rather than “would jeopardize the existence” of a species as under the original consultation provisions, but also limiting that review to projects “funded or carried out” by state agencies, rather than also including state agency permitting of private projects, as under the original provisions); *id.* at 10652 (also supporting excluding local governments from a revised CESA consultation process). Manthripragada also supported keeping the ability of lead agencies to override jeopardy findings by the Department, as under the original CESA consultation provisions, so long as adequate mitigation is provided. *Id.* at 10653.

¹⁰⁸ Dwyer & Murphy, *supra* note 100, at 750 (“In addition, significant time, money, and energy has been expended to list species that have very little chance of recovery or cannot contribute to the goal of broader ecosystem conservation. Environmentalists lament that single species protection fails to stanch continued ecosystem losses. Developers plead for “one stop shopping” in environmental reviews and permitting. The single species focus fails both constituencies.”); see also Brad D. Kern, *Permitting the Take: An Analysis of Section 2018 of the California Endangered Species Act*, 8 N.Y.U. ENVTL. L.J. 74, 87 (1999) (criticizing single-species focus of listing process under CESA); *id.* at 89 (noting that single-species focus of ITP process means that unlisted species and broader ecosystems may not be adequately considered, and landowners face risk of additional regulatory burdens from future listings); Craig Manson, *Natural Communities Conservation Planning: California’s New Ecosystem Approach to Biodiversity*, 24 ENVTL. L. 603, 604 (1994) (“The listing of individual species and the failure to take notice of an entire ecosystem results in endangered species crisis management. By statutory definition, an “endangered species” is one on its ecological deathbed.”).

¹⁰⁹ See Dwyer & Murphy, *supra* note 100, at 741, 763-64.

¹¹⁰ “NCCP constitutes a paradigm shift from the existing federal practice of project-based, single species conservation actions, offering instead a regional multiple species, multiple habitat protection program. With a front-loaded ecosystem planning approach, state agencies attempt to identify and conserve imperiled habitats and their resident species before those habitats become degraded by development-and species listings are required.” Dwyer & Murphy, *supra* note 100, at 741; see also Manson, *supra* note 108, at 610-11

which species warrant listing, and perhaps even triaging species that are infeasible to save or recover.¹¹¹ The RCIS program under AB 2087 may also address some of these concerns by providing a greater landscape level of analysis for biodiversity protection.

On the other hand, critics also argued that the CESA species listing process was too open to political pressure¹¹² because the listing process did not provide clear guidelines as to when species were to be listed, and gave the Commission too much discretion in making listing decisions.¹¹³ Some of these critics also argued that listing under CESA took too long, with too many review processes – which contributed to listing species at the last minute.¹¹⁴ These commentators called for accelerating listing and/or requiring scientific peer review for listing decisions.¹¹⁵

The scope of protection of CESA has also been a regular point of criticism. Plants listed for protection under CESA nonetheless may not receive many of the protections from take under CESA, because as noted above much laxer protections under the NPPA might override the CESA take provisions for plant species listed under both statutes.¹¹⁶ Others have noted the uncertainty about whether CESA protects terrestrial invertebrates and argued for fuller protection under CESA for insects.¹¹⁷

For the take and ITP provisions, critics have pointed out the uncertainty as to whether take does prohibit habitat modification,¹¹⁸ and argued that the prohibition on ITPs that cause jeopardy should be strengthened.¹¹⁹ Scholars have also noted that off-site mitigation, which is increasingly used under both CESA and the NCCPA for permitting projects, has significant risks – such as whether off-site mitigation is available and whether it is a real substitute for the harms to the species in the original project site.¹²⁰

Relatedly, commentators have observed that the ITP process focuses solely on mitigating the harm to a specific species caused by the permit applicant, rather than on the overall needs of the species for recovery such that it no longer requires legal protection – and that there are no provisions under the Act that focus specifically on requiring public or private entities to provide for recovery.¹²¹ Without real contributions

(stating that NCCPA brought a “preventive medicine” approach to biodiversity protection, seeking to avoid last-minute species listings and conflicts over projects); DeAnne Parker, *Natural Community Conservation Planning: California’s Emerging Ecosystem Management Alternative*, 6 U. BALTIMORE J. ENVTL. L. 107, 107-08 (1997) (“The NCCP’s main purpose is to prevent foreseeable “train wrecks” of legal and political gridlock caused when species protection under the Endangered Species Act (ESA) conflicts with economic growth. . . . The NCCP is designed to prevent such conflict by encouraging voluntary, cooperative, long-term conservation planning on an ecosystem basis by a collaboration of federal, state and local governments, and private landowners and environmentalists.”)

¹¹¹ Dwyer & Murphy, *supra* note 100, at 759.

¹¹² *Id.* at 745 (“Ostensibly, science is meant to depoliticize species listings. However, the process continues to be criticized both nationally and in California for being politically motivated, rather than biologically determined.”).

¹¹³ Kelly & D’Angelo, *supra* note 100, at 4.

¹¹⁴ *Id.*

¹¹⁵ *Id.* (calling for accelerated review); Dwyer & Murphy, *supra* note 100, at 759 (calling for peer review). Recent amendments to CESA eliminated some of the redundant hearings for listing, see Part I.A.1.a, and the Department’s regulations now call for peer review for listing decisions where possible. 14 Cal. Code Reg. 670.1(f)(2).

¹¹⁶ JENSEN, DEBORAH B., MARGARET S. TORN, & JOHN HARTE, IN OUR OWN HANDS: A STRATEGY FOR CONSERVING CALIFORNIA’S BIOLOGICAL DIVERSITY 190 (1993); Dwyer and Murphy, *supra* note 100, at 753.

¹¹⁷ JENSEN, TORN, & HARTE, *supra* note 116, at 229-30; *see also* MORRISON AND BIRKEY, *supra* note 5, at 224 (noting this issue).

¹¹⁸ Kern, *supra* note 108, at 86-87.

¹¹⁹ Current law prohibits ITPs that “would jeopardize the existence” of listed species; commentators have argued this should be changed to “is likely to jeopardize” which would avoid having to prove a proposed take would cause jeopardy. Kern, *supra* note 108, at 82.

¹²⁰ Amy Wilson Morris & Jessica Owley, *Mitigating the Impacts of the Renewable Energy Gold Rush*, 15 MINN. J. L. SCI. & TECH. 293, 372-75 (2014); *see also* Manthripragada, *supra* note 101, at 10655 (noting study finding lack of implementation of mitigation measures for CESA in early 2000s).

¹²¹ Dwyer & Murphy, *supra* note 100, at 744 (“At present, the state Act has no mandated statutory requirement for recovery planning actions that are so central to meeting federal Act goals.”); *id.* at 762-63 (calling for “achievable performance standards” based on recovery for lead agencies implementing CESA’s conservation mandate); *see also* Manthripragada, *supra* note 101, at 10652 (calling for a recovery standard in a revived CESA consultation process).

towards recovery, the argument goes, listed species will continue to languish without real progress, remaining on the edge of extinction.¹²²

CESA permitting has been criticized as being redundant, complicated, and overlapping with other regulatory programs such as the federal ESA and CEQA, imposing needless paperwork requirements on public and private actors.¹²³ Some of these criticisms may have been addressed with changes to CESA over the years – for instance, criticisms of the overlap of the CESA consultation and CEQA review processes¹²⁴ may have contributed to the elimination of the CESA consultation process in the 1990s. And as noted above, CESA now has provisions that allow for streamlined permitting under CESA for parties who have received permits for the same activities and species under the federal ESA, where species are listed under both Acts.¹²⁵

In addition, commentators have criticized CESA for relying primarily on enforcement to prompt landowner actions to protect endangered species, rather than providing positive inducements for landowners to engage in actions that would conserve endangered species and their habitats.¹²⁶ Again, recent changes to CESA may have addressed some of these concerns – CESA now has a “safe harbor” program, modeled after a program under the federal ESA, in which landowners who take affirmative actions to improve habitat for endangered species on their lands get relief from additional regulatory burdens they might face because of that improved habitat.¹²⁷

Finally, multiple commentators in the 1990s flagged the structure and resources of the Department (then the California Department of Fish and Game) as a major constraint on effective implementation of CESA. The Department was created to regulate and promote hunting and fishing in California, with a focus on managing and increasing populations of popular fish and game species. Department leadership that was brought up in this culture was criticized as indifferent or even hostile to efforts to expand the Department’s mission to include protection of endangered species.¹²⁸ Much of the funding for the Department has traditionally come from hunting and fishing licenses, and this revenue is restricted to being used for the fish and game component of the Department’s operations.¹²⁹ This leaves endangered species programs dependent

¹²² Recent amendments to CESA did authorize state agencies to develop “nonregulatory recovery plans” that lay out what is required to recover CESA-listed species, but only if funding is available. CAL. FISH & GAME CODE § 2079.1.

¹²³ Dwyer & Murphy, *supra* note 100, at 751-53; *id.* at 760-61 (calling for “one stop permitting” for endangered species across local, state, and federal levels).

¹²⁴ *Id.* at 751-52.

¹²⁵ See CAL. FISH & GAME CODE § 2080.1.

¹²⁶ Dwyer & Murphy, *supra* note 100, at 745 (“State and federal government use the “hammer” of command and control regulation to achieve legislative intent, relying upon listing, deadlines for compliance, and detailed enforcement procedures and standards. While this practice has ensured high rates of compliance, albeit grudging by many landowners, the practice makes it more difficult to engineer creative solutions that could better serve to avoid collisions between conservation goals and economic activities.”); *id.* at 753-54, 764-65.

¹²⁷ See CAL. FISH AND GAME CODE § 2089.2 et seq.; U.S. Fish and Wildlife Service and National Marine Fisheries Service, Safe Harbor Agreements and Candidate Conservation Agreements with Assurances; Announcement of Final Safe Harbor Policy; Announcement of Final Policy for Candidate Conservation Agreements With Assurances; Final Rule and Notices, 64 Fed. Reg. 32705 (June 17, 1999). The basic idea is that landowners who improve habitat for endangered species would presumably end up with larger populations of those endangered species – and while this is something that is socially beneficial, would nonetheless increase the regulatory burden on landowners because the increased population of the listed species would increase the risk of incidental take by landowners when they undertake actions on their lands. Safe harbor programs are designed to eliminate regulatory burdens for landowners created by improved habitat or populations that are above the baseline present before the landowner undertook the habitat improvements. They allow the landowner to “return to baseline” in terms of habitat conditions on the property through future management actions without violating CESA. In other words, the take authorization allows landowner flexibility in terms of management, or even to return to pre-permit conditions on the property.

¹²⁸ JENSEN, TORN, & HARTE, *supra* note 116, at 186-87; see also Kelly and D’Angelo, *supra* note 100, at 6; Dwyer and Murphy, *supra* note 100, at 754, 756 (1995) (“The Fish and Game Department is saddled with the frankly unmanageable responsibility of solving the myriad problems created by a department in conflict with itself. Some divisions have a mandate to preserve species and their habitats, while others issue licenses to hunt and fish.”)

¹²⁹ JENSEN, TORN, & HARTE, *supra* note 116, at 186-87. These dynamics led one group to call for the creation of a new state agency focused solely on biodiversity. *Id.* at 219.

on funding from the state's general fund, which can be very vulnerable to steep cuts when there are budget crises.¹³⁰ Some of this funding imbalance has been addressed with efforts to increase the fees charged for CESA permitting¹³¹ – though this in turn can make the Department dependent on issuing permits for funding (which may be in tension with the mission of protecting endangered species if issuance of a particular permit is not appropriate from a conservation perspective) and also increases burdens on permit applicants, particularly small landowners.

A lack of resources for endangered species in the Department has real impacts on enforcement, on issuing permits in a timely manner to applicants, on providing careful review and analyses for CEQA reviews requested by lead agencies, and on collecting the basic data needed to understand the status and needs of endangered species and ecosystems across the state.¹³² Indeed, a lack of resources may be the most important obstacle for effective state-level endangered species protection in California.

2. Comparison to other state endangered species statutes

Much of the scholarly commentary on CESA is quite old. One option for understanding the strengths and weaknesses of CESA is to compare it to other state endangered species acts, to see what CESA has that these acts do not, or what it is missing. While such a comparison has its limits – simply because a law is on the books does not mean it is enforced; administrative interpretation of laws can significantly change their meaning; and it may be that all or most other state acts are flawed in important ways – it can still be illuminating.

Here, in general, California appears as a leader among states despite the issues identified above. For instance, even with its arguably weak protections against public agency action might jeopardize the existence of listed species, California is among a minority of states that provide some protection for listed species against government action.¹³³ California's provisions protecting CESA-listed species against commerce or direct take (i.e., hunting and capture) are common among states, at least for animals.¹³⁴ And to the extent that California's prohibition on take does include habitat modification, that would put it in a distinct minority of states, along with only eight others.¹³⁵ Unusual among states, California allows for citizen petitions for listing of species.¹³⁶

The fact that CESA may not cover terrestrial invertebrates puts California in the minority of states, with thirty-two states having endangered species laws that allow for the listing and protection of terrestrial invertebrates.¹³⁷

¹³⁰ For discussion of the lack of resources for endangered species management in the Department in the 1990s, see *id.* at 189; see also Kelly & D'Angelo, *supra* note 100, at 6; Dwyer & Murphy, *supra* note 100, at 754-55.

¹³¹ See CAL. FISH & GAME CODE § 2081.2.

¹³² See Dwyer & Murphy, *supra* note 100, at 756 (noting lack of data about imperiled species in California).

¹³³ Thirteen states, including California, provide some protection against government action that might jeopardize listed animal species; twelve species do so for plants. Eric Biber, *A Survey of State Wildlife and Endangered Species Protections*, 56 IDAHO L. REV. 11, 15-16 (2020). For additional recent work providing comparative analysis across state endangered species laws, see Alejandro E. Camacho et al., *Assessing State Laws and Resources for Endangered Species Protection*, 47 ENVTL. L. REP. NEWS & ANALYSIS 10837 (2017); Robert L. Fischman et al., *State Imperiled Species Legislation*, 48 ENVTL. L. 81 (2018).

¹³⁴ Forty-six states, including California, protect listed endangered animal species from commerce, and forty-five, including California, protected listed endangered animal species from direct take. Protections for plants are less common, with only twenty-six (including California) protecting plants from commerce and twenty-eight (including California) from direct take. Biber, *Survey*, *supra* note 133, at 17-24.

¹³⁵ *Id.* at 25.

¹³⁶ See State Endangered Species Laws, Center for Conservation Innovation, https://defenders-cci.org/app/state_ESAs/ (main tab, check box for "Can citizens petition for species to be protected?") (showing thirteen other states have petition programs similar to California's) (providing overview of status of state endangered species acts); Fischman, et al., *supra* note 133, at 103 (finding only twelve states plus California allow for petitions).

¹³⁷ Biber, *Survey*, *supra* note 133, at 14.

While CESA does not have a requirement that agencies develop and implement a recovery program, few states have such a requirement.¹³⁸ A few other states have a more robust process than California for ensuring that government actions do not cause jeopardy to listed species.¹³⁹

Overall, then, on paper CESA is among the more stringent state endangered species acts, with the important exceptions of coverage of terrestrial invertebrates. A recent study by UC Irvine and Defenders of Wildlife scored only ten states as having more stringent biodiversity protections than California.¹⁴⁰

3. Current assessments of the implementation of California's biodiversity protection statutes

Assessment of on the ground implementation of CESA and California's other biodiversity protection statutes is a different question from how those statutes operate on paper. And an assessment of the on the ground implementation of CESA and related statutes is surprisingly difficult to undertake – there hasn't been significant academic or policy writing on the statutes in over fifteen years. Data on CESA implementation from the Department is limited, particularly as to permitting. Good data is available on the use of NCCPAs and RCISs, and on the species listed for protection under CESA.¹⁴¹ Historically, there has been limited data on species status and on the incidental take permits and consistency determinations issued under CESA, though the situation is improving. The legislature in 2018 provided funding for five-year status reviews of all CESA listed species.¹⁴² However, to date only six species have had updated reviews completed, with eleven more in progress.¹⁴³ State law now requires the Department to post all CESA ITPs online, beginning in 2019.¹⁴⁴ Stakeholders generally agree that the NCCP program is underutilized today – perhaps because of a lack of funding, and perhaps because of the increasing number of analyses and findings that must be made to approve a NCCPA. There was a lag in approval of NCCPs several years ago, though two major county-level programs have been approved recently (for Yolo County and Placer County).

4. Summary

Overall, on paper CESA is probably one of the most ambitious state-level biodiversity protection statutes in the United States. In comparison to other states, its largest weakness is the possibility that the statute does not provide protections to terrestrial invertebrates. The potential lack of protection for plants from many common forms of take is another possible major gap in CESA.

CESA has a very limited recovery planning process currently that appears to have been rarely, if ever, used, and recovery is not integrated into the permitting program for authorizing take. While CESA does not have a clear and enforceable restriction on government action causing jeopardy to listed species, CEQA can

¹³⁸ See State Endangered Species Laws, Center for Conservation Innovation, https://defenders-cci.org/app/state_ESAs/ (main tab, check box for “Are recovery planning and implementation authorized?”) (showing only five states with more rigorous recovery planning programs than California and most states without a mandatory program, like California); Fischman, et al., *supra* note 133, at 100 tbl.1 (showing only three states with mandatory recovery programs).

¹³⁹ See State Endangered Species Laws, Center for Conservation Innovation, https://defenders-cci.org/app/state_ESAs/ (main tab, check box for “Is consultation with government experts required?”) (showing only eight states have stricter protections than California); Fischman, et al., *supra* note 133, at 107 tbl.2 (finding eleven states with stricter protections than California).

¹⁴⁰ See State Endangered Species Laws, Center for Conservation Innovation, https://defenders-cci.org/app/state_ESAs/ (main tab, check all boxes to see total score).

¹⁴¹ See <https://wildlife.ca.gov/Conservation/Planning/NCCP> (NCCP); [https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation\(RCIS\)](https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation(RCIS)).

¹⁴² CAL. FISH & GAME CODE § 2077(a).

¹⁴³ See CAL. DEP'T. OF WILDLIFE, FIVE-YEAR REVIEWS OF THREATENED SPECIES, <https://wildlife.ca.gov/Conservation/CESA/Five-Year-Reviews> The Department's website does have a data portal that allows for public access to map species range and habitat on a statewide basis. See <https://apps.wildlife.ca.gov/bios/>.

¹⁴⁴ See CAL. FISH & GAME CODE § 2081(e); <https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting> (portal for data access).

play this role at least in part. Ecosystem-level management is likewise something that is primarily undertaken under a different statute, the NCCPA, although that Act appears to have been less frequently used recently. The division of responsibilities for biodiversity protection across a range of statutes (CESA, CEQA, NCCPA, and others), along with overlap with the federal ESA, creates complexity for landowners and other regulated parties seeking to understand and comply with the laws. However, CESA has incorporated some recent innovations to encourage landowner compliance with the statute (such as “safe harbors”) though others (such as “no surprises”) are limited.

Finally, CESA implementation has likely been hampered by budgetary constraints and the institutional legacy of the Department. And assessment of CESA implementation (and therefore accountability for that implementation) has historically been hampered by the lack of publicly accessible data on CESA implementation.

III. MOVING BIODIVERSITY LAW INTO THE TWENTY-FIRST CENTURY

The development of proposals for improving CESA can draw on a wide range of scholarship and other commentary on the challenges facing biodiversity law in the twenty-first century – with a particular focus on the most prominent and important biodiversity law, the federal Endangered Species Act (ESA). This literature has highlighted a number of important themes about how biodiversity law in general and the ESA in particular can be improved. Given the dearth of literature specifically analyzing CESA and its implementation over the past decade, and the limited data on the implementation of CESA, I draw on this literature on the federal ESA to provide insights as to how CESA might be improved. There are, of course, significant differences between the two statutes, but as noted in the introduction to Part I, the parallels between the two statutes are strong enough that the overall themes from the ESA literature can be helpful in assessing CESA.

A fundamental issue that is still disputed is the extent of success of the ESA on its own terms – the extent to which it has protected biodiversity. On one hand, very few species listed for protection under the ESA have been delisted because they have been recovered and are no longer endangered or threatened.¹⁴⁵ On the other hand, relatively few listed species have gone extinct,¹⁴⁶ and some researchers estimate that the ESA has saved hundreds of species from going extinct.¹⁴⁷ Similar dynamics are present for CESA, with few CESA species having been delisted, but also few having gone extinct. Thus, the record of biodiversity law in the United States is mixed.¹⁴⁸ The question is, why?

A. Triage and Prioritization

One explanation is that the ESA seeks to protect too many species, and “spreads resources too thinly among too many listed species, resulting in underprotection for all, instead of fully recovering some species and

¹⁴⁵ See Eric Biber, *The Application of the Endangered Species Act to the Protection of Freshwater Mussels: A Case Study*, 32 ENVTL. L. 91, 138-40 (2002) (summarizing this criticism). The discussion in this section draws on the structure and analysis of this article, updated for more recent literature and additional issues raised.

¹⁴⁶ See Mark W. Schwartz, *The Performance of the Endangered Species Act*, 39 ANNUAL REVIEW OF ECOLOGY, EVOLUTION AND SYSTEMATICS 279, 292 (2008) (“Fewer species have gone extinct than expected without protection. More species have gone extinct waiting to be listed than have gone extinct once listed. Changes in species status are more likely to be improving than deteriorating. Application of the fundamental species protection tools is linked with improving status.”).

¹⁴⁷ See Noah Greenwald, et al., *Extinction and the U.S. Endangered Species Act*, PEER J. 7:e6803 DPI 10.7717/peerj.6803 (assessing that the ESA has prevented almost 300 species from going extinct).

¹⁴⁸ See, e.g., Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion Over Nature*, 17 NYU ENVTL. L.J. 490, 494-495 (2008) (noting the “ESA’s Mixed Record in Helping Species” and that listed species generally don’t go extinct, but “the Act rarely leads to the recovery of species”); Christian Langpap, *The Economics of the U.S. Endangered Species Act: A Review of Recent Developments*, 12 REV. OF ENVIRONMENTAL ECONOMICS AND POLICY 69, 83 (2018) (same); Schwartz, *supra* note 146, at 290 (noting lack of extinctions of ESA listed species but also challenges of recovering listed species).

allowing others to go extinct.”¹⁴⁹ Critics have called for “triage” of species, whether in restricting which species are listed at all for protection under the ESA, or whether in terms of allocating funding and other resources for the recovery of listed species.¹⁵⁰

With respect to recovery funding, allocation across species is already highly uneven, with some species receiving the lions-share of resources, and the large majority receiving a pittance.¹⁵¹ Invertebrate and plant species are particularly starved of recovery funding.¹⁵² Thus, arguments for triage in the context of recovery funding can be understood as arguments for a more rational, thoughtful allocation process,¹⁵³ as opposed to a process that currently appears to be driven by political or bureaucratic motivations.¹⁵⁴

B. Enforcement and Incentives

A second criticism is that the ESA relies too heavily on enforcement and regulatory restrictions, and not enough on incentives for landowners to take positive actions to restore endangered species and their habitat.¹⁵⁵ These critics note that most endangered species have some or all of their habitat on private lands, and that many of the threats facing endangered species – such as invasive species or the restoration of fire to ecosystems – require active management by landowners.¹⁵⁶ However, to the extent that landowners face greater regulatory restrictions on their activities when there are more endangered species or better endangered species habitats on their lands, landowners don’t have much (if any) incentive to undertake these active management efforts on their properties.¹⁵⁷

But the problem can be worse. Landowners faced with the possible listing of a species on their property might worry that they will shortly face much greater restrictions on how they can use their land, with

¹⁴⁹ Biber, *Application*, *supra* note 145, at 140.

¹⁵⁰ See, e.g., CHARLES C. MANN & MARK L. PLUMMER, *NOAH’S CHOICE: THE FUTURE OF ENDANGERED SPECIES* (1995) (a leading advocate for triage in the context of listing); Wyman, *supra* note 148, at 492 (arguing that we should “acknowledge that it is not realistic to protect the existing level of biodiversity given large-scale human domination of the earth”); *id.* (“some of those who support species protection will have to be more willing to target our conservation efforts and not try to save every species”).

¹⁵¹ Leah R. Gerber, *Conservation triage or injurious neglect in endangered species recovery*, 113 *PROCEEDINGS OF NAT’L ACADEMY OF SCIENCES* 3563 (2016) (finding that recovery spending is unevenly distributed across species, with a small number of species receiving far more than required, and many species receiving far less); see also Daniel M. Evans, *et al.*, *Species Recovery in the United States: Increasing the Effectiveness of the Endangered Species Act*, *ISSUES IN ECOLOGY* No. 20 at p. 10 (Winter 2016) (noting “80 percent of all listed species shared less than 5 percent of all [recovery] funds”).

¹⁵² Elizabeth Robson Gordon, *et al.*, *Relative costs of conserving threatened species across taxonomic groups*, 34 *CONSERVATION BIOLOGY* 276 (2019) (noting that spending on recovery for charismatic megafauna is very expensive per species compared to protecting invertebrates, which could lead to the loss of many non-charismatic species); Evans, *et al.*, *supra* note 151, at p. 10 (noting lack of funding for plants in particular); Schwartz, *supra* note 146, at 286 (noting lack of recovery funding for plants).

¹⁵³ Gerber, *supra* note 151 (calling for explicit allocation of resources for recovery across species based on value choices about how to balance goals, such as preventing extinction versus advancing recovery); see also Madeleine C. Bottrill, *et al.*, *Is conservation triage just smart decisionmaking?* 23 *TRENDS IN ECOLOGY AND EVOLUTION* 649 (2008); Evans, *et al.*, *supra* note 151, at p. 1 (summary of proposals for reforming the ESA, including “Establish and consistently apply a system for prioritizing recovery funding to maximize strategic outcomes for listed species.”).

¹⁵⁴ Evans, *et al.*, *supra* note 151, at p. 11 (stating that FWS doesn’t use its own recovery priority system for funding).

¹⁵⁵ See Biber, *Application*, *supra* note 145, at 141-43; Damien M. Schiff, *The Endangered Species Act at 40: A Tale of Radicalization, Politicization, Bureaucratization, and Senescence*, 37 *ENVIRONS: ENVIRONMENTAL LAW AND POLICY J.* 105, 128 (2014); Ashley Graves, *Collaborative Management as a Mechanism for Incentivizing Private Landowners and Protecting Endangered Species*, 6 *TEX. A&M L. REV.* 297, 300 (2018); Evans, *et al.*, *supra* note 151, at p. 1; Donald C. Baur, Michael J. Bean, and William Robert Irving, *A Recovery Plan for the Endangered Species Act*, 39 *ENVTL. L. REV. NEWS & ANALYSIS* 10006, 10008-09 (2009)

¹⁵⁶ “(1) [M]uch of the habitat needed for species recovery is on nonfederal lands; (2) active management of this habitat is often needed; (3) nothing in the ESA compels, or even encourages, such management; (4) there are costs associated with active habitat management; and (5) engaging in these desirable habitat activities can give rise to legal restrictions on use of the land under the ESA” Baur, Bean, and Irving, *supra* note 155, at 10008; see also Evans, *et al.*, *supra* note 151, at p. 14.

¹⁵⁷ Paul Henson, Rollie White, & Steven P. Thompson, *Improving Implementation of the Endangered Species Act: Finding Common Ground Through Common Sense*, 68 *BioScience* 861, 864 (2018).

significant economic consequences.¹⁵⁸ These landowners might then proactively seek to eliminate the species that might be listed or its habitat in order to reduce the risk of regulation. Landowners may even illegally eliminate endangered species or their habitat after listing to reduce regulatory burdens – what is colloquially called “shoot, shovel, shut up.” These activities may be unlikely to be detected or prosecuted, at least for some species or some forms of habitat conversion.¹⁵⁹

In order to both encourage proactive private landowner management that can benefit endangered species and to discourage landowner harm to endangered species and their habitat, commentators and policymakers have pushed for more positive incentives for landowners to be rewarded (or at least not be penalized) for having more endangered species and their habitat on their lands.¹⁶⁰

Positive incentives may come in a variety of forms. Simplest are monetary payments to landowners, which can include tax credits or purchases of conservation easements. Efforts to guide landowners through the regulatory process and provide technical assistance as to how to manage land to benefit endangered species are another option.¹⁶¹ A third important option includes regulatory assurances – binding promises by the regulator as to the nature or scope of the regulatory requirements the landowner will face in return for promises by the landowner as to management that will benefit (or minimize harm to) a listed or potentially listed species.¹⁶²

Many of these efforts have already been developed in the ESA, primarily through the use of regulatory assurances. The ESA safe harbors program guarantees that landowners who take affirmative steps to improve endangered species habitat on their lands will not face additional regulatory restrictions if endangered species populations increase; the CESA has a parallel program.¹⁶³ Habitat conservation plans (HCPs) under the ESA can provide regulatory assurances (in the form of a “no surprises” policy) that no additional regulatory requirements will be imposed on the landowner in return for the landowner committing to minimize and mitigate harm to listed species from development activities on the property. “No surprises” is available for NCCPs, but not for ITPs under CESA. Candidate conservation agreements with assurances involve promises by landowners to take steps to benefit species that are candidates for listing under the ESA, in return for a promise by the regulatory agency that no additional regulatory requirements will be imposed on the landowner if the species is, in fact, listed. The federal wildlife agencies also have undertaken efforts to provide financial and technical support for landowners, though those efforts are generally understood to meet only a fraction of the potential demand.¹⁶⁴

¹⁵⁸ *Id.* at 864 (“ESA-listed species are often viewed as a fiscal or legal burden by private landowners.”).

¹⁵⁹ Graves, *supra* note 155, at 301; Evans, *et al.*, *supra* note 151, at p. 2; Henson, White, and Thompson, *supra* note 157, at 862. For a thorough summary of the relevant research, see Jonathan H. Adler, *Money or Nothing: The Adverse Environmental Consequences of Uncompensated Land Use Controls*, 49 BOSTON COLLEGE L. REV. 301, 315-34 (2008); Langpap, *supra* note 148, at 78-79.

¹⁶⁰ A 2006 working group of many leading ESA stakeholders concluded that “an attractive incentives program will be integral to advancing the goals of both conservation interests and the regulated sector.” THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES, 7 (2006); *id.* at 17 (“Robust incentives are needed to conserve the habitat that species need to recover; they also serve to decrease reliance on regulation.”).

¹⁶¹ Lauren K. Ward, Gary T. Green, and Robert L. Izlar, *Family Forest Landowners and the Endangered Species Act: Assessing Potential Incentive Programs*, 116 J. FORESTRY 529 (2018) (survey of family forest landowners in southeastern US finding they want financial incentives and technical support).

¹⁶² Langpap, *supra* note 148, at 80; *id.* at 82 (summarizing research finding that regulatory assurances are the most powerful incentive tool, and that they are among the most widely used); R. Neal Wilkins, *Improving the ESA’s Performance on Private Land*, 56, 61-62 in REBUILDING THE ARK: NEW PERSPECTIVES ON ENDANGERED SPECIES ACT REFORM (Jonathan H. Adler, ed. 2011) (noting role of regulatory certainty as an incentive program).

¹⁶³ MICHAEL J. BEAN, ENDANGERED SPECIES SAFE HARBOR AGREEMENTS: AN ASSESSMENT WORKING PAPER, SAND COUNTY FOUNDATION/ENVIRONMENTAL POLICY INNOVATION CENTER (2017) (providing overview of the program). Research has found mixed results as to the extent to which safe harbors programs have improved conservation outcomes for species, though they are generally understood to reduce hostility by landowners to the ESA. *Id.* at 8-9; Jennifer A. Smith, *et al.*, *How effective is the Safe Harbor program for the conservation of Red-cockaded Woodpeckers?* 120 THE CONDOR 223 (2018).

¹⁶⁴ Financial incentives for conservation by landowners can come from a range of other sources, including payments by non-profits for conservation easements on private lands; federal tax credits for the donation of development rights on private land to non-profits; and federal payments to farmers for conservation of land interests.

Developing effective landowner incentive programs can be challenging. “There is an inherent trade-off between maximizing participation and maximizing the conservation benefits when designing a conservation incentive program.”¹⁶⁵ Landowners will value higher levels of payments; they may prefer greater flexibility in management choices under any payment contracts; they may prefer shorter-term contracts that reduce the certainty of any conservation outcomes.¹⁶⁶ In addition, the spatial relationships between landowners who enter into conservation incentive contracts will matter, because the success of conservation efforts necessarily depends on the location of where those efforts occur.¹⁶⁷ For instance, it is often the case that large patches of habitat need to be protected to ensure high-quality habitat for endangered species – protecting large patches requires a minimum number of landowners in a particular location to enter into conservation programs, creating collective action challenges.

Another form of incentive can be efforts to streamline compliance systems, making permitting and regulatory approvals easier, and consolidating duplicative permitting systems across different regulators.¹⁶⁸ For instance, where a species is listed under both state and federal endangered species acts, allowing a single permitting process to allow for permitting under both programs can facilitate compliance efforts by landowners.¹⁶⁹ Permit programs may be made simpler in terms of permit acquisition and compliance for small-scale activities by small landowners.¹⁷⁰ Streamlining may be particularly important for proactive public and private entities seeking to undertake management that will benefit listed species, but may entail some risk of short-term harm to individual members of listed species.¹⁷¹ Given the challenges of getting landowners to undertake these actions to begin with, reducing these permitting obstacles to restoration efforts can be especially significant.

C. *Species versus Ecosystems, and Adaptive Management*

A third theme in criticism of the ESA is that it is overly focused on protecting individual species from the impacts of individual projects, with its system that requires the listing of individual species for protection, and regulatory protections that focus on harm to those listed species from specific projects. Because species depend on functioning ecosystems, management that protects and restores ecosystems can effectively conserve a wide range of species more efficiently than piecemeal efforts to rescue individual species (efforts that often would require ecosystem restoration efforts regardless).¹⁷² As noted above, the development of the NCCPA in California was an attempt to address these issues.

¹⁶⁵ Michael G. Sorice, et al., *Increasing participation in incentive programs for biodiversity conservation*, 25 *ECOLOGICAL APPLICATIONS* 1146, 1146 (2013)

¹⁶⁶ *Id.*

¹⁶⁷ Langpap, *supra* note 148, at 80-81; Amy W. Ando & Christian Langpap, *The Economics of Species Conservation*, 10 *ANNUAL REVIEW OF RESOURCE ECONOMICS* 445, 449 (2018) (noting the issue and suggesting as possible solution that payments only be made if a threshold of participants exist).

¹⁶⁸ Schiff, *supra* note 155, at 128. Streamlining was an important issue for a working group of leading ESA stakeholders. THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES 6 (2006) (“Regulation is necessary and worthwhile; however, it can be made less burdensome for the regulator and the regulated and more effective for the species.”); *id.* at 14 (“Transactional Costs. Participants generally agreed that transactional inefficiencies can be a key pitfall for the ESA.”).

¹⁶⁹ Such a process exists for the CESA, as discussed above. See notes 47-48 and accompanying text, *supra*.

¹⁷⁰ See David A. Dana, *Reforming Section 10 and the Habitat Conservation Program*, 32, 43-44 in *REBUILDING THE ARK: NEW PERSPECTIVES ON ENDANGERED SPECIES ACT REFORM* (Jonathan H. Adler, ed. 2011) (proposing adjusting the process for the application for incidental take permits depending on the scale of the activity covered by the permit); see generally Eric Biber & J.B. Ruhl, *The Permit Power Revisited: The Theory and Practice of Regulatory Permits in the Administrative State*, 64 *DUKE L.J.* 133 (2014).

¹⁷¹ Henson, White, & Thompson, *supra* note 157, at 865; Baur, Bean, & Irving, *supra* note 155, at 10007-08.

¹⁷² See Biber, *Application*, *supra* note 145, at 141-44; Wyman, *supra* note 148, at 508; Schiff, *supra* note 155, at 122 (“The Act anachronistically protects species rather than larger biological units.”); Melinda Harm Benson, *Intelligent Tinkering: the Endangered Species Act and Resilience*, 17 *ECOLOGY AND SOCIETY* 28 (2012) (arguing that it is a “limitation” of the ESA that it “focuses on the well-being of individual species rather than overall functionality of ecological systems”); Evans, et al., *supra* note 151, at p. 1, 25

Related are criticisms that the ESA intervenes too late to effectively protect species: “It is often said that if you have reached the point that you need to list a species under the ESA, you are probably too late.”¹⁷³ Species are listed when they are often on the verge of extinction, which makes recovery far more expensive and difficult. Late intervention also makes conflicts between species protection and development much more zero-sum since there is so much less margin of error for a listed species (making compromise harder) and because the remaining habitat for a species may be concentrated on a few private properties, making those landowners feel unfairly singled out for regulatory burdens.¹⁷⁴ These commentators argue that proactive efforts to protect species earlier, combined with more of a focus on the ecosystems that species depend upon for survival, would result in protection and recovery that is cheaper, more effective, and less controversial.¹⁷⁵

Efforts to address this criticism in the context of the ESA have included proactive efforts by federal and state regulatory agencies and private parties to take conservation measures for species before they are listed. These efforts are often motivated by the desire to avoid regulatory burdens from listing – and often produce contentious battles over whether the standards under the ESA have or have not been met to avoid a listing of a species. Critics argue that a more structured and nuanced process for pre-listing conservation efforts might be more effective.¹⁷⁶

Many of the same commentators who call for a more ecosystem-oriented legal system for biodiversity protection also argue for a greater use of adaptive management, an approach increasingly advocated for by scientists, managers, and policymakers.¹⁷⁷ Advocates of adaptive management argue that it can provide needed flexibility in the face of changing climates and varying threats to species and that it can also allow for obtaining vital information about species and ecosystems where we lack so much information.¹⁷⁸ Commentators have argued that the ESA is not always flexible enough to allow for adaptive management – or at least, the implementation of the ESA by regulators has not been flexible enough to allow for adaptive management.¹⁷⁹ Accordingly, they argue for changes to the ESA to facilitate greater use of adaptive management.¹⁸⁰ These changes could include greater implementation of monitoring under the ESA, since monitoring is an essential component of adaptive management; flexibility for managers to take a range of management decisions that can produce useful information, even if that might increase the risk to a listed species in the short-run; and “triggers” that can be used to ensure that new information about species is used to improve management for the species.¹⁸¹

(“Evaluate ecosystem-based approaches such as surrogate species and coarse ecological filters to develop methods that increase the efficiency of managing for recovery.”); Henson, White, and Thompson, *supra* note 157, at 867.

One issue with ecosystem-focused protection efforts is that there can be tensions between ecosystem-level and species-level protection. See, e.g., Michael L. Casazza, et al., *Endangered species management and ecosystem restoration: finding the common ground*, 21 *ECOLOGY AND SOCIETY* 19 (2016) (describing example where removal of a non-native invasive plant species damaged habitat for a listed bird species).

¹⁷³ Henson, White, & Thompson, *supra* note 157, at 862; see also Biber, *Application*, *supra* note 145, at 144-45.

¹⁷⁴ Henson, White, & Thompson, *supra* note 157, at 862.

¹⁷⁵ Wyman, *supra* note 148, at 528 (“We should approach biodiversity protection in a similar way. Rather than focusing on the emergency measures that the ESA offers species in crisis, we should aim to prevent species from reaching crisis conditions.”); Benson, *supra* note 172 (“The second limitation of the ESA relates to the fact that the law only begins to protect species when they are either threatened with or in danger of extinction.”); Schwartz, *supra* note 146, at 293-94.

¹⁷⁶ Henson, White, and Thompson, *supra* note 157, at 862-63 (“There is no effective incremental or iterative process under the ESA for initiating conservation prior to a species being formally considered for listing.”); *id.* at 863 (recommending “make it standard procedure prior to a listing to develop collaborative conservation strategies with states and private stakeholders”)

¹⁷⁷ See Eric Biber, *Adaptive Management and the Future of Environmental Law*, 46 *AKRON L. REV.* 933, 934-39 (2013).

¹⁷⁸ *Id.* at 934-39.

¹⁷⁹ See, e.g., Benson, *supra* note 172.

¹⁸⁰ See, e.g., THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES 6 (2006) (“Various forms of adaptive management are therefore essential to effective and intelligent recovery planning.”).

¹⁸¹ See, e.g., Evans, et al., *supra* note 151, at 1 (“Promote more monitoring and adaptive management for species recovery.”); *id.* at 20 (calling for triggers for implementing adaptive management); Dana, *supra* note 170, at 39-40 (calling for use of triggers in implementation of incidental take permits).

D. Recovery and Delisting

In theory at least, the ultimate goal for any biodiversity law is restoring endangered species to a point where they are no longer endangered – what the ESA and CESA term “recovery.” Accordingly, many commentators have argued for a greater role for recovery in the implementation of the ESA.¹⁸² What that might mean, precisely, however, can be up for debate. It could simply mean greater funding for recovery implementation by state and federal wildlife agencies, so that more habitats are protected and restored, threats ameliorated, and such. It could mean that recovery plans – which are supposed to outline the methods and standards for recovery of listed species under the ESA, and which the federal wildlife agencies are required to prepare – should be made better in some way, whether it is more detailed or more effective or more thorough.¹⁸³ Or it could mean that the goal of recovery – improving the status of species to the extent that they no longer are threatened with extinction – would guide the regulatory program of the ESA and CESA.¹⁸⁴ This could mean much more stringent regulatory standards, or it could mean regulatory standards that are focused on different things. A recovery-focused approach, for instance, might lean more towards ecosystem-level protection on the grounds that species will never be truly recovered unless the ecosystems they are part of are recovered – and that ecosystem-focused efforts are therefore more efficient and effective.

At the same time, a range of academic researchers over the past two decades have identified the concept of “conservation reliant species” – species for which recovery will always require ongoing human intervention and management, such as control of invasive species or maintenance of fire in ecosystems.¹⁸⁵ The challenge that these species present is that while their status may improve to the extent that it meets the requirements for delisting under the ESA, maintaining that status requires ongoing management and/or regulatory protections that may only be available under the ESA.¹⁸⁶ This dilemma has hampered the delisting of a number of species recently, and lead to proposals for the development of “conservation management agreements” to ensure that effective management and protection for these species continues after delisting.¹⁸⁷

¹⁸² THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES 6 (2006) (calling for changes in ESA “providing greater focus on recovery”); Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 *ECOLOGY L.Q.* 1 (1996). The one component of the ESA that researchers have consistently found is the best predictor of improved listed species status is implementation of recovery plans or programs. Langpap, *supra* note 148, at 84 (summarizing research finding that recovery plans are associated with better outcomes for species).

¹⁸³ See THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES 6 (2006) (calling for “a greater focus on the function, content, scope and mechanics of recovery plans” in the ESA); *id.* at 7 (“The working group consistently underscored the need for scientifically sound, financially reasonable, and adaptive recovery plans.”); Evans, *et al.*, *supra* note 151, at 1 (“Refine methods to develop more objective, measurable recovery criteria based on the best available science.”).

¹⁸⁴ Cheever, *supra* note 182; see also Biber, *Application*, *supra* note 145, at 147.

¹⁸⁵ Evans, *et al.*, *supra* note 151, at 11; J. Michael Scott, Dale D. Goble, John A. Wiens, David S. Wilcove, Michael Bean & Timothy D. Male, *Recovery of Imperiled Species Under the Endangered Species Act: The Need for a New Approach*, 3 *FRONTIERS ECOLOGY & ENV'T* 383 (2005); Holly Doremus, *Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation*, 30 *ENVTL. L. REP.* 10434 (2000); J. Michael Scott, Dale D. Goble, Aaron M. Haines, John A. Wiens & Maile C. Neel, *Conservation-Reliant Species and the Future of Conservation*, 3 *CONSERVATION LETTERS* 91 (2010); Dale D. Goble, John A. Wiens, J. Michael Scott, Timothy D. Male & John A. Hall, *Conservation-Reliant Species* 62 *BIOSCIENCE* 869 (2012).

¹⁸⁶ Carol I. Bocetti, Dale D. Goble, and J. Michael Scott, *Using Conservation Management Agreements to Secure Postrecovery Perpetuation of Conservation-Reliant Species: The Kirtland's Warbler as a Case Study*, 62 *BIOSCIENCE* 874 (2012).

¹⁸⁷ *Id.* The authors identify the key elements of these agreements as: “(1) a conservation partnership capable of implementing management actions at conservation-relevant scales, (2) a conservation management plan based on the management actions in the species’ successful recovery plan, (3) sufficient financial resources to provide the required conservation management, and (4) legal enforcement.” *Id.*

E. Climate Change

One of the most important threats to biodiversity is the impact of rising global temperatures from anthropogenic emissions of greenhouse gases.¹⁸⁸ Despite the importance of climate change for biodiversity, many commentators are skeptical that the ESA can adequately address it. That is, in large part, because the cause of climate change are emissions of greenhouse gases as a result of human activity on a global scale. Should the ESA be called upon to ratchet down emissions of greenhouse gases from all of the uses of fossil fuels in the United States – including petroleum for gas-powered cars, gas and coal for electricity use, and more? And even if that was done, the US now represents only a fraction of global emissions.

Accordingly, many commentators have called for the ESA to focus on facilitating the transition of species and ecosystems to a future changed climate, a “no-analog” future – by addressing other threats and by facilitating adaptation by species through (for instance) removing human constraints to range shifts.¹⁸⁹ Others have argued that these changes require a broad restructuring of the Act, supporting changes such as triaging species.¹⁹⁰ This is not a universal approach – a range of environmental groups (most notably the Center for Biological Diversity) continue to use the ESA aggressively to challenge large-scale fossil fuel extraction activities in the United States.

F. The Role of Politics, Litigation, and Science

A number of commentators – and some leading environmental groups – argue that the reason the ESA hasn’t been as successful as it could be is that it hasn’t been enforced enough.¹⁹¹ These commentators point to federal wildlife agencies resisting the listing of species that clearly warrant listing (even to the extent that species go extinct waiting for protection), and to agency interpretations of the ESA that weaken key regulatory provisions.¹⁹² From this perspective, ensuring adequate implementation and enforcement of the ESA requires active litigation by environmental groups to push agencies to actually meet the terms of the Act. More broadly, these commentators point to significant gaps in existing laws – such as limited protection for endangered species habitat – as a major factor in the limited recovery success of the federal ESA.¹⁹³

A particular focus of complaints about political pressure on ESA implementation – from both environmental groups and regulated parties – is the listing process.¹⁹⁴ The ESA has a very broad definition of what qualifies a species as endangered or threatened, and there have been repeated criticisms that the federal wildlife agencies have manipulated that broad definition to list, or not list, species based on political motivations – potentially disregarding relevant scientific data in the process. Commentators have accordingly called for clearer standards for the listing of species.¹⁹⁵

¹⁸⁸ See INTERGOVERNMENTAL SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES, SUMMARY FOR POLICYMAKERS OF THE GLOBAL ASSESSMENT REPORT, ¶¶ A.4 (p. 11), B.2 (p. 13), C.5 (p. 16), p. 29, pp. 35-37 (2019) (documenting the significance of the threat of climate change to biodiversity globally); Camille Parmesan, *Ecological and Evolutionary Response to Recent Climate Change*, 37 ANN. REV. ECOLOGY, EVOLUTION AND SYSTEMATICS 637 (2006).

¹⁸⁹ See J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 BOSTON UNIV. L. REV. 1 (2008); J.B. Ruhl, *Pit Bulls Can’t Fly: Adapting the Endangered Species Act to the Reality of Climate Change*, 179 in REBUILDING THE ARK: NEW PERSPECTIVES ON ENDANGERED SPECIES ACT REFORM (Jonathan H. Adler, ed. 2011); see also Baur, Bean, and Irving, *supra* note 155, at 10010. (“By identifying the species that are threatened by climate change and those actions that can be taken to provide achievable protection for these species, the ESA could be administered as a safety net, leaving other legal mechanisms outside the ESA to control the global warming threat.”).

¹⁹⁰ Wyman, *supra* note 148, at 492; see also Schiff, *supra* note 155, at 120 (“The Act is ill-suited to address climate change”).

¹⁹¹ See Biber, *Application*, *supra* note 145, at 145-47 (summarizing these arguments).

¹⁹² *Id.*

¹⁹³ See *id.* at 145-47 (summarizing criticism of failure of federal wildlife agencies to implement protections for critical habitat under the ESA).

¹⁹⁴ See Jonathan H. Adler, *The Leaky Ark: The Failure of Endangered Species Regulation on Private Land*, in REBUILDING THE ARK: NEW PERSPECTIVES ON ENDANGERED SPECIES ACT REFORM, 6, 19-21 (Jonathan H. Adler, ed. 2011); Ya-Wei Li, *et al.*, *Species protection will take more than rule reversal*, 370 SCIENCE 665 (2020).

¹⁹⁵ Ya-Wei Li, *et al.*, *Species protection will take more than rule reversal*, 370 SCIENCE 665 (2020).

In contrast, commentators and regulated industry often decry what they term as abusive litigation in the implementation of the ESA. These critics contend that litigation distorts ESA implementation away from what the expert agencies would seek to do, creates conflict and undermines cooperation among stakeholders, and that cooperation is needed for effective on-the-ground conservation and recovery of listed species.¹⁹⁶

Political pressure on wildlife agencies may also short-circuit the use of science in biodiversity protection. For instance, during the George W. Bush Administration, there were notorious examples of political appointees in FWS editing scientific documents because they wanted to change the policy outcomes for ESA decisions (particularly listing decisions).¹⁹⁷ Science is often not outcome-determinative in legal and policy decisions in the context of biodiversity protection – value choices are often necessarily part of how to apply limited scientific information in the context of inherent uncertainty to policy and legal decisions.¹⁹⁸ But allowing political actors to manipulate scientific inputs to the legal and policy process allows those actors to minimize the policy and value choices they are making, and avoid accountability.¹⁹⁹ These issues are particularly present in the context of the ESA, where science is an essential input, but value choices are fraught as well.²⁰⁰

Integrity in scientific decision-making can be advanced by providing civil service protections to scientists working for wildlife agencies, by clearly separating scientific documents from the policy decisions that are made based on those documents, by providing for peer review of scientific documents in appropriate contexts, and by requiring transparent and public disclosure of the relevant scientific information.²⁰¹

G. The Role of States

Finally, a range of commentators and stakeholders have called for greater engagement by states in the implementation of the ESA, with more cooperation and less dominance by the federal wildlife agencies.²⁰² For instance, in 2016 the Western Governors' Association called for a greater state role in ESA implementation.²⁰³ Such a rebalancing could be limited to greater cooperation by the federal agencies with state agencies and additional funding from the federal government for state activities,²⁰⁴ Alternatively, it

¹⁹⁶ Wyman, *supra* note 148, at 496 (arguing that litigation over listing interferes with protecting the species who need protection the most); Henson, White, and Thompson, *supra* note 157, at 862 (“And [the Act’s] implementation often consumes scarce conservation resources because of bureaucratic and administrative requirements, especially when ambiguities in the law invite litigation.”). *But see* Berry J. Brosi and Eric G.N. Biber, *Citizen Involvement in the U.S. Endangered Species Act*, 337 SCIENCE 802 (2012) (finding that species petitioned for listing by environmental groups are as or more threatened than species listed by the agencies on their own initiative).

¹⁹⁷ See Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 TEX. L. REV. 1601, 1604-09 (2008).

¹⁹⁸ See Eric Biber, *Which Science? Whose Science? How Scientific Disciplines Can Shape Environmental Law*, 79 U. CHI. L. REV. 471, 476-87 (2012); Holly Doremus, *The Purposes, Effects, and Future of the Endangered Species Act’s Best Available Science Mandate*, 34 ENVIRONMENTAL LAW 397, 419-21 (2004).

¹⁹⁹ See Wendy Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613 (1995); Doremus, *Purpose, Effects, and Future*, *supra* note 198, at 426-29.

²⁰⁰ See Doremus, *Purpose, Effects, and Future*, *supra* note 198.

²⁰¹ See *id.* at 437-441, 447-49; Doremus, *Scientific and Political Integrity*, *supra* note 197. Doremus notes that peer review is not a panacea for scientific disputes, in part because peer review may not provide the in-depth investigation that is needed to identify real flaws in reports, and in part because it can be used to delay or prevent appropriate regulatory action even when the underlying science is unclear or uncertain. *Id.*

²⁰² Evans, *et al.*, *supra* note 151, at 13; Temple Stoellinger, *Wildlife Issues Are Local – So Why Isn’t ESA Implementation?* 44 ECOLOGY L.Q. 681 (2017).

²⁰³ WESTERN GOVERNORS’ ASS’N. POLICY RESOLUTION 2017-11, SPECIES CONSERVATION AND THE ENDANGERED SPECIES ACT (2017).

²⁰⁴ THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES HABITAT ISSUES 27 (2006) (calling for greater federal support of state conservation agency involvement); Henson, White, and Thompson, *supra* note 157, at 863 (calling for engaging states in prelisting process).

could extend to delegating some federal ESA activities to state agencies,²⁰⁵ or it could extend as far as repealing or diminishing the scope of the federal ESA in favor of state primacy.

Arguments in favor of greater delegation contend that states have more expertise in many wildlife areas than federal agencies and that states may be in a better position to collaborate with private landowners and other stakeholders.²⁰⁶ Skeptics express concerns about whether states may actually have the resources available to support endangered species protection, the legal frameworks states may be able to rely upon to provide regulatory protections for endangered species (especially if the goal is rolling back the federal ESA), and the political will of states to fight for endangered species management.²⁰⁷

Finally, threats of repeal of the federal ESA – including possible judicial declarations that the ESA is unconstitutional as applied to a range of species and habitats²⁰⁸ – might prompt advocates for endangered species to seek more robust state level protections as a backup to the federal ESA.

IV. REFORMS FOR A TWENTY-FIRST CENTURY CESA

The thematic critiques of biodiversity law and the federal ESA developed in Part III combined with the assessments of CESA from Part II.B can provide insights for the development of specific reforms for CESA. While CESA in many ways is a comparatively powerful biodiversity protection statute compared to those of other states, it potentially has major gaps with respect to invertebrates, plants, and habitat modification – all of which are widely understood by conservation biologists to be central to biodiversity protection. While the literature assessing the federal ESA has emphasized the importance of positive incentives for landowners to encourage proactive conservation, CESA has only limited provisions for positive incentives – primarily in the form of regulatory certainty through safe harbors and no surprises for NCCPs.²⁰⁹ More likely can also be done to facilitate streamlining and complexity given the overlapping roles of the various state statutes and the federal ESA. Lastly, the literature heavily emphasizes the importance of early, proactive action to protect species and to manage at the ecosystem-level – while the NCCPA is intended to take this role, as noted in Part II.B.3 NCCPs are not as frequently approved as in the 1990s. This raises the question of whether other approaches, in other statutes or built into CESA, can provide alternative ways of achieving these goals.

The possible reforms laid out in this section address these key themes, as well as additional issues raised in Parts II.B and III. As noted above, the reforms developed here are not a complete package – while some ideas likely would be best developed concurrently with others, it is also the case that some of the ideas could be adopted, while others might be rejected or left for later on. In other words, the proposals here are fairly modular – in part recognizing that the political opportunities for different kinds of reforms may present themselves at different times. Nonetheless, the reforms laid out here would, in an ideal world, be adopted overall to help transition CESA to address the biodiversity challenges of the twenty-first century.

²⁰⁵ WESTERN GOVERNORS' ASS'N. POLICY RESOLUTION 2017-11, SPECIES CONSERVATION AND THE ENDANGERED SPECIES ACT (2017); Temple Stoellinger, *Wildlife Issues Are Local – So Why Isn't ESA Implementation?* 44 *ECOLOGY L.Q.* 681 (2017).

²⁰⁶ WESTERN GOVERNORS' ASS'N. POLICY RESOLUTION 2017-11, SPECIES CONSERVATION AND THE ENDANGERED SPECIES ACT (2017).

²⁰⁷ See Alejandro E. Camacho et al., *Assessing State Laws and Resources for Endangered Species Protection*, 47 *ENVTL. L. REP. NEWS & ANALYSIS* 10837, 10843 (2017) (“Although increased coordination between the states and federal agencies regarding the protection and recovery of threatened and endangered species may well have some benefits, close analysis of current state laws and state-level experience reveals that conservation laws in most states are inadequate to achieve the ESA’s conservation and recovery goals.”).

²⁰⁸ See Eric Biber & Elise O’Dea, *Is the Endangered Species Act Constitutional? How the Utah Prairie Dog Case May Impact California*, 24(1) *ENVTL. LAW NEWS* 51 (Summer 2015) (overview of litigation and potential risks to protection for species). For cases, all of which have upheld the constitutionality of the ESA, see, e.g., *People for the Ethical Treatment of Property Owners*, 852 F.3d 990 (10th Cir. 2017); *San Luis & Delta-Mendota Water Auth. v. Salazar*, 638 F.3d 1163 (9th Cir. 2011); *Alabama-Tombigbee Rivers Coalition v. Kempthorne*, 477 F.3d 1250 (11th Cir. 2007); *Rancho Viego LLC v. Norton*, 323 F.3d 1062 (D.C. Cir. 2003); *GDF Realty Investments, Ltd. v. Norton*, 326 F.3d 622 (5th Cir. 2003).

²⁰⁹ Other provisions that can provide some landowner incentives include the RCIS program, and the “voluntary local program” that allows for development of exemptions for routine agricultural activities. CAL. FISH & GAME CODE § 2086.

The reforms here are organized by the important components of CESA, the federal ESA, and associated state laws: listing; recovery; take; jeopardy; ecosystem-level protection; enforcement and funding; and data and science. This structure makes it easier for the reader to track the proposed changes with the existing law, although many of the themes discussed in Part II would cut across the various components of CESA. To aid the reader, Table 2 connects different proposals in this Part with the themes developed in Part II.

A. Listing

This section develops possible amendments to the provisions in CESA that provide for the listing and delisting of species for protection.

1. Accelerated or automatic listing of federal listed species under CESA

As noted above in Part III, there have been calls for greater state engagement in the implementation of biodiversity law in general.²¹⁰ There are currently a significant number of species that are federally listed in California but are not listed under CESA.²¹¹ This creates two separate challenges. First, the lack of CESA listing for these species may prevent the state from taking the lead on ESA implementation (including use of permit streamlining) for these species, if the federal government were so inclined.²¹²

Second, if there was significant retrenchment or even repeal of the federal ESA, these species might receive little to no protection without coverage under CESA. In addition, even if species remain listed under the federal ESA, inadequate implementation of the ESA by the federal wildlife agencies under an administration hostile to the ESA could occur. Again, state protection under the CESA can provide an insurance policy against this possibility.

Finally, more overlap between the two lists would also reduce confusion about what legal protections various species receive and would facilitate permit streamlining by the state that could potentially also cover federal permitting – if the state took over delegated ESA permit authority from the federal government (as discussed below).²¹³

In general, species that are federally listed would presumably meet the standards for listing under CESA as well.²¹⁴ Setting up an accelerated process by which federally listed species can be listed under CESA

²¹⁰ See Part II.G, *supra*.

²¹¹ Seventy-nine out of the 130 federally listed animal species in California are not listed under CESA; for plants, 64 out of 186 federally listed species are not listed under CESA, see CAL. NAT. RES. AGENCY, CAL. DEP'T. OF FISH & WILDLIFE, STATE AND FEDERALLY LISTED ENDANGERED AND THREATENED ANIMALS OF CALIFORNIA (2021), <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline>.

²¹² Section 6 of the ESA authorizes cooperative agreements between the federal wildlife agencies and a state to allow the state to take the lead in ESA implementation. However, that section requires the federal wildlife agencies, before entering into a cooperative agreement, to conclude that the state has an “adequate and active program for the conservation” of listed species, including that the relevant state agency has “authority” to “conserve” listed species, unless the state and the agencies agree that the state has a program that will provide “immediate attention” to high-priority listed species, in which case a narrower program may be approved. The implementing regulations indicate that if a state chooses the second alternative, only species that are within the authority of the state to protect can be covered by the cooperative agreement. See State Cooperation Agreements Relating to Endangered and Threatened Species of Fish and Wildlife, 44 Fed. Reg. 31,578, 31,579 (proposed May 31, 1979). Depending on how this language is interpreted or applied, this may require the listing of species under state law to authorize delegation of federal protection; it may also require filling gaps in CESA protections, such as the possible gap for protection of terrestrial invertebrates, discussed below, at least if streamlining is to be applied for those species. 16 U.S.C. 1535(c)(1) (2021).

²¹³ Streamlining in this manner likely would require aligning the federal and CESA ITP standards better than exists under current law. I discuss this in more detail *infra*.

²¹⁴ There are two significant exceptions to this general principle. First, CESA allows for the listing of species that are rare within California, but more common elsewhere in the United States – these species presumably would be less likely to be listed under the federal ESA given their greater abundance outside California. See *Cal. Forestry Ass'n v. Cal. Fish & Game Comm'n*, 156 Cal. App. 4th 1533 1544-49 (2007). The proposal here would have little relevance for these species, which would be listed only under CESA. Second, the federal ESA arguably makes it easier to list populations (as opposed to species or subspecies) than CESA. This could be addressed

would accordingly make sense. One possibility would be to set up a system by which federally listed species are automatically listed under CESA, unless the Commission takes affirmative steps not to list them, using its full rulemaking authority. The statute could place a high burden on the Commission in deciding to not follow a federal listing decision.²¹⁵ If federally listed species that are also CESA listed are delisted by USFWS, then that could be treated as a petition to delist under CESA that requires timely Commission action, but with an independent judgment by the Commission (informed by the Department) about whether delisting is appropriate. This would reduce the possibility that a hostile federal administration could effectively gut endangered species protection in California through unjustifiable delisting actions.

2. Expand definition of species to include terrestrial invertebrates

The current definition of endangered, threatened, and candidate species under CESA includes “bird, mammal, fish, amphibian, reptile, or plant.”²¹⁶ This definition does not explicitly include terrestrial invertebrate species. The term fish, however, does include aquatic invertebrates.²¹⁷ Terrestrial invertebrates face significant threats, and are important components of well-functioning ecosystems. Moreover, as noted above, California is among the minority of states that does not clearly protect terrestrial invertebrates through its state endangered species act.²¹⁸ Addressing this potential gap would require expanding the definition of species in CESA to include “invertebrates.”²¹⁹ Protection of terrestrial invertebrates is important on its own merits – and while it would increase the number of species listed under CESA (thus, arguably continuing a species-level focus in CESA), protecting invertebrates may also facilitate ecosystem-level restoration and conservation. By aligning CESA with the federal ESA,²²⁰ it would also facilitate greater state engagement in biodiversity protection.

3. Provide greater guidance for the listing of populations that are not subspecies or species

Both CESA and the federal ESA allow for protection of populations of species, rather than a species (or subspecies) as a whole. The federal ESA definition of a species that can be listed includes a “distinct population segment” (DPS) for any vertebrate species.²²¹ USFWS and NOAA have used the DPS category in a number of cases, particularly to protect salmon runs, but there has been a great deal of controversy over

by limiting any automatic or accelerated listing provisions to species and subspecies, or by amending CESA to give more guidance on DPS listings, as discussed below.

²¹⁵ The statute might require substantial evidence not already present in the federal listing decision for any decisions not to list, and require the Commission in considering that evidence to apply mandatory listing factors, discussed below. Possible reasons for the Commission to not list under CESA a federally listed species might include additional, substantial data available to the Commission that was not available to the federal wildlife agencies showing that listing is not warranted, or the possibility that a species is abundant in California, even though it is more broadly under threat outside California, such that listing within the state is not warranted to protect the species within California.

²¹⁶ CAL. FISH & GAME CODE §§ 2062, 2067, 2068.

²¹⁷ *Id.* § 45.

²¹⁸ *See supra* Part I.B.2.

²¹⁹ The Commission has listed four native bee species as candidates under CESA, a decision that is now subject to litigation. *See supra* note 17.

²²⁰ The federal ESA allows for the protection of terrestrial invertebrates. *See* 16 USC § 1532(8).

²²¹ 16 U.S.C. § 1532(16). In addition, the federal ESA definition of an endangered species includes a species in danger of extinction throughout all or a “significant portion of its range.” The latter part of the definition has been relied upon by environmental groups to argue for protections for entire species or components of species. *See, e.g.,* *Defenders of Wildlife v. Norton*, 258 F.3d 1136 (9th Cir.2001). The “significant portion of range” language has been vexing for the agencies to implement and has produced significant litigation. CESA also has the “significant portion of range” language in its definition of endangered species in Section 2062; it has been relied upon by the Department and the courts to support listing species that are rare or endangered in California but not outside the state. *See* *Cal. Forestry Ass’n v. Cal. Fish & Game Comm’n*, 156 Cal. App. 4th 1533 1544-49 (2007).

how broadly it extends.²²² The relevant legislative history indicates that the agencies are to use the concept sparingly.²²³ However, environmental groups have pushed to use the DPS concept to list populations in a wide range of circumstances.²²⁴

CESA does not have DPS language, though the courts have upheld the designation of populations that are no subspecies or species, and the Commission has listed a range of populations below the species and subspecies levels.²²⁵ Protection of populations below the subspecies level raises difficult policy questions. Protection of biodiversity includes protection of significant genetic resources present at the population level – even if a particular population is not a subspecies, it may contain important genetic resources valuable for the evolutionary survival of the species as a whole.²²⁶ For instance, populations on the northern edge of a species range may have particular genetic resources that favor adaptation to cooler climates. Protecting these kinds of genetic resources can be an important component of maintaining the genetic diversity of a species as a whole, genetic diversity that itself is important for enabling the adaptation and evolution of a species in response to changed conditions – including climate change.²²⁷

On the other hand, protecting populations increases the number of entities that would receive CESA protection, increasing regulatory burdens and the cost of administering the CESA program.²²⁸ Because there is no specific language with respect to populations below the level of species or subspecies in CESA, there is no overall guidance for the Commission in deciding how to weigh these tradeoffs.

One approach might be to provide specific factors in CESA that could provide that guidance to the Commission and require the Commission to make specific findings about those populations before protection is implemented. This would provide guidance for the Commission as it makes decisions about prioritization for protecting populations. Factors that might be appropriate for the Commission to consider in deciding whether to list populations might include:

- The cultural or economic importance of the population
- The importance of the population for the ecosystems it is present in (currently or historically), including status of the population as a keystone species
- The importance of the population for the conservation and evolution of the species as a whole
- The distinctiveness and significance of the population in genetic, morphological, behavioral, biochemical, or physiological characteristics from the species as a whole (this factor would draw on the current USFWS/NOAA policy for DPS)²²⁹
- The status of the population as an evolutionary unit that has the potential for the development of a unique evolutionary future²³⁰

²²² See, e.g., *Me. v. Norton*, 257 F. Supp.2d 357 (D. Maine 2003) (litigation over listing of distinct population segment for Atlantic salmon in Maine); *Trout Unlimited v. Lohn*, 559 F.3d 946 (9th Cir. 2009) (litigation over listing of salmon runs in Pacific Northwest); *Or. Natural Res. Council v. Daley*, 6 F. Supp. 2d 1139 (D. Oregon 1998) (litigation over listing of salmon runs in Oregon).

²²³ See SEN. REP. NO. 151 (calling for designation of distinct population segments to be undertaken “sparingly”).

²²⁴ See, e.g., *The Bi-State Sage Grouse Story*, U.S. FISH & WILDLIFE SERVICE, PACIFIC SOUTHWEST REGION, [https://www.fws.gov/cno/es/bistate-sagegrouse/bi-statesagegrouse.cfm#:~:text=The%20Bi%20State%20Sage%20Grouse,Endangered%20Species%20Act%20\(ESA\)A](https://www.fws.gov/cno/es/bistate-sagegrouse/bi-statesagegrouse.cfm#:~:text=The%20Bi%20State%20Sage%20Grouse,Endangered%20Species%20Act%20(ESA)A) (May 13, 2015) (describing petitions to list population of sage grouse on the Nevada-California state border).

²²⁵ See *Cal. Forestry Ass’n v. Cal. Fish & Game Comm’n*, 156 Cal. App. 4th 1533, 1544-49 (2007).

²²⁶ See Reed F. Noss, *Some Principles of Conservation Biology, as They Apply to Environmental Law*, 69 CHI-KENT L. REV. 893 (1994); Norm Myers & Andrew H. Kroll, *The Biotic Crisis and the Future of Evolution*, 98 PROC. NAT’L ACAD. SCIENCES 5389 (2001).

²²⁷ See Noss, *supra* note 226.

²²⁸ Berry J Brosi & Eric G Biber, *Statistical Inference, Type II Error, and Decision Making Under the US Endangered Species Act*, 7 FRONTIERS IN ECOLOGY AND ENV’T (2009).

²²⁹ U.S. FISH & WILDLIFE SERVICE AND NATIONAL MARINE FISHERIES SERVICE, *Endangered and Threatened Wildlife and Plants; Interagency Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act*, 61 Fed. Reg. 4722 (1996).

²³⁰ Many of the factors on this list were originally suggested as ways to provide greater guidance to the federal wildlife agencies in listing species under the ESA by Holly Doremus. Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better*

For DPS already protected by the federal government within California, they could be treated the same as other federally listed species (i.e., default protection under CESA unless the Commission specifically choose not to protect them). The Commission, in choosing whether to not list these DPS, could be required to make specific findings as to why it disagrees with the federal listing decision, drawing on the above factors.²³¹

4. Statutorily require listing and delisting of a species under CESA if specific factors are present

The federal ESA requires the listing of a species if the agency makes a determination that a species is endangered or threatened because of 5 listing factors: “(A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.”²³² These provisions set a mandatory trigger for listing for species that are at risk²³³ – something that is not clearly present in the statutory language of the current version of CESA. Indeed, the courts have concluded that CESA listing and delisting decisions are discretionary decisions.²³⁴ And while the Department’s implementing regulations track the above language from the federal ESA, they could be amended or weakened by the Commission at a future date.

Similar statutory language could be added to CESA to impose a mandatory duty for the Commission to list a species if the listing factors are met. Reciprocally, the statute could also provide that if the Commission concludes that if the listing factors no longer apply to a species, then delisting of the species would be required. These changes would have two legal implications. First, they would allow a court to order the Commission to list a species if the threats to the species are present, and likewise allow a court order for delisting if the threats are no longer present. The possibility of stricter judicial review would respond to concerns that the Commission’s listing decisions have been subject to too much political pressure historically, overriding considerations of the status and threats faced by a species.

Second, they would eliminate CEQA review for both listing and delisting – a review process that can add significant time and cost for both steps, delaying the ability of the Commission to respond to new changed circumstances in terms of species status.²³⁵ Allowing the CESA regulatory process to respond more nimbly to changes in species status and threats would be consonant with what proponents of adaptive management have called for in conservation policy more generally – a legal regime that can move quickly in the face of new information. It would also facilitate the proactive listing of species in response to increasing threats. At the same time, allowing quicker delisting decisions would allow the Commission to quickly respond to effective conservation efforts, which might incentivize private landowner and public agency conservation efforts for species.

Science Isn’t Always Better Policy, 75 WASH. U. L.Q. 1029 (1997). My proposal would produce a decisionmaking process very different from the current federal process for identifying and listing DPS. In particular, the first two factors are not ones that the federal wildlife agencies consider in making current decisions about identifying and listing DPS. See Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, 61 Fed. Reg. 4722.

²³¹ If these changes to provide guidance for DPS listings are made, the statutory text might be amended to eliminate the reference to “significant portion of range” in the definition of endangered species, given that it would not likely add much to the population-level protection provisions. The language has been the source of great confusion and uncertainty as to how it should be applied under the federal ESA. See DALE D. GOBLE et al., WILDLIFE LAW: CASES AND MATERIALS 950-61 (3d ed. 2017) (giving overview of the controversy).

²³² 16 U.S.C. § 1533(a)(1).

²³³ Note that the mandatory nature of listing if these threats are found by the federal wildlife agency is mitigated in large part by the discretion the agency has to determine whether the threats exist or exist to the extent that listing is warranted. [check interaction of ESA listing with NEPA review, which I think is determined by lack of discretion in listing decision]

²³⁴ Pac. Legal Found. v. Andrus, 657 F.2d 829 (6th Cir. 1981).

²³⁵ It is true that the Commission’s listing process qualifies as a “certified regulatory program” such that the CEQA analysis is subsumed within the listing process, and a separate EIR is not required from the listing or delisting decision. However, the requirement that the listing or delisting decision fully analyze significant environmental concerns, alternatives, and mitigation remains, imposing a formidable analytic task on the agency. Mountain Lion Found. v. Fish and Game Comm’n, 16 Cal. 4th 105, 122-23 (1997).

The threat list could be made clearer in three other respects. First, climate change could be explicitly added as a threat to be considered by the Commission in making listing decisions. Second, the statute could make clear that delisting by the Commission can only occur if it makes specific findings that the threats that led to the species' listing, or that currently pose threats to the species, have been adequately addressed.

Finally, the statute or the implementing regulations could provide clear quantitative standards that would require listing (or preclude listing) for a species proposed for listing. These standards could be drawn from the International Union for the Conservation of Nature's (IUCN) Red List program, which uses biologically based quantitative standards for the global classification of species based on the degree of threats they face.²³⁶ The IUCN system is well-regarded and scientifically defensible. Such a system has been used in Florida for implementation of that state's endangered species program for a number of years.²³⁷ This change to more quantitative standards would reduce political pressure on listing decisions, which may increase the perceived legitimacy and reliability of those decisions by a range of stakeholders.²³⁸ Clearer quantitative standards might also make it easier to engage landowners and other stakeholders in the process of conserving species to avoid listing, as discussed next.

If this option is adopted, it would be prudent to create a pathway for listing for species that do not meet the quantitative standards,²³⁹ provided specified findings are made by the Commission as to why the standards are not relevant for that decision. Situations that might require deviating from the quantitative standards could include situations where there isn't good data, where the published peer reviewed scientific literature isn't up to date with data on the ground for species, or where the biological and other characteristics of a species do not match well with the general quantitative standards. The current requirement under CESA that the Commission must consider the best available science in making listing decisions would provide grounds for addressing some of these situations, by requiring the Commission to rely on the most up-to-date information.

5. Creating a More Robust Prelisting Program

As noted in Part III, there is widespread agreement that earlier and more proactive conservation efforts would be more effective in conserving and recovering endangered species, and that listing often occurs very late, when a species' status is dire.²⁴⁰ However, listing imposes substantial regulatory costs that make early listing politically and administratively difficult. In addition, private landowners and public entities working to avoid listing decisions for listed species might want more clarity about what efforts will be needed to ensure that listing will not occur.

A possible resolution would be to allow the Commission to adopt triggers that explicitly identify what conservation efforts and outcomes are required to avoid listing – if the Department determines in a specified time frame that those triggers have not been met, then the species would be automatically listed under CESA. In the meantime, CESA regulatory provisions would not apply. This process would have the advantage of giving clarity and strong incentives for public and private actors to take proactive steps to conserve and restore species.²⁴¹ So long as those steps are taken and are effective, CESA regulation would not occur. Moreover, the fact that the proposed listing decision would not immediately trigger regulatory requirements under CESA may make it easier for the Commission to act early and proactively. However, if conservation

²³⁶ See generally, <https://www.iucnredlist.org/>. For the standards, see Int'l Union for the Conservation of Nature, IUCN Red List Categories and Criteria Version 3.1 (2d ed. 2000), <https://portals.iucn.org/library/sites/library/files/documents/RL-2001-001-2nd.pdf>.

²³⁷ See FLA. ADMIN. CODE 68A-27.0012(2)(c)(2)(c).

²³⁸ See *supra* Part II.F.

²³⁹ Or to deny listing to species that do meet the quantitative standards.

²⁴⁰ See *supra* Part III.C.

²⁴¹ It would also provide for more equitable treatment of species before listing.

efforts are not successful, then the protections under CESA could be quickly implemented to ensure rapid intervention for a declining species.²⁴²

This process could also be used to address the issue of “conservation reliant species” that have met recovery targets but require ongoing management to maintain their status.²⁴³ In making delisting decisions, the Commission could specify specific triggers for species status and conservation efforts that, if not satisfied, would again lead to automatic relisting of the species under CESA. This approach may make it easier to delist conservation reliant species – it would address concerns that if the management efforts these species depend upon are not maintained, the species’ status might deteriorate substantially while a long relisting process is undertaken. It would also provide clarity to stakeholders as to what is required to maintain the species as delisted.

Providing clear triggers for listing and relisting decisions for species could be done through statutory changes in CESA that explicitly allow the Commission to defer listing for a petitioned species for a specific time period, with automatic listing if triggers are not met.²⁴⁴ Likewise, the Commission could put these triggers into delisting decisions.

B. Recovery

This section develops possible changes to the provisions of CESA that seek to advance the recovery of listed species, i.e., improving the status of listed species so that CESA protection is no longer required. Overall, the proposals here would seek to achieve a recovery planning process that can be robust and detailed enough to be a key driver and component of the regulatory process – more so than the current recovery plans under the federal ESA.

1. Revive recovery planning

Recent amendments to CESA restored a recovery planning component to CESA, so long as appropriated funds are available for the recovery planning process.²⁴⁵ The current language is based on the federal recovery planning process.²⁴⁶

As noted above in Part III, there is a broad consensus that effective biodiversity conservation requires a focus on recovery – and that the current recovery plans under the federal ESA could be improved to further

²⁴² This proposal builds on an existing effort by the Commission to encourage private conservation efforts to protect the Joshua Tree and avoid listing of that iconic plant species under CESA. Currently, the Commission has proposed listing the species under CESA, which provides take protections for the species as a candidate for listing; the Commission also authorized permits for renewable energy projects that would mitigate harm the projects would otherwise cause to Joshua Tree habitat. See CAL. FISH & GAME COMMISSION, NOTICE OF FINDINGS, WESTERN JOSHUA TREE (YUCCA BREVIOLA) (2020), <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=183565&inline>; See also, *California Grants Joshua Tree Temporary Restrictions*, NAT’L PARKS CONSERVATION ASS’N (Sep 22, 2020), <https://www.npca.org/articles/2698-california-grants-joshua-tree-temporary-protections>; Barry H. Epstein & Angus C. Beverly, *California Landowners and Developers: Western Joshua Tree Incidental Take Permits Now Required*, ALLEN MATKINS (Oct. 2, 2020), <https://www.allenmatkins.com/real-ideas/california-landowners-and-developers-western-joshua-tree-incident-take-permits-now-required.html>; see also CAL. FISH & GAME CODE § 2083 (authorizing Department to issue take permits for candidate species). However, the Commission must make a final decision on listing the species within a year, which significantly limits the Commission’s flexibility.

²⁴³ See *supra* Part III.D.

²⁴⁴ At the end of the time period, the Commission would be required to make new findings as to whether the triggers originally identified still are adequate to ensure that the species is not endangered or threatened and should be extended. The time period for delaying listing should be long enough to allow a chance for conservation efforts to succeed, but not so long that circumstances might change substantially such that the triggers are no longer accurate reflections of the status of the species. That time period likely will vary substantially depending on the biology of a species and the threats it faces, and thus should be left to the Commission to determine – perhaps with an upper bound of twenty years. Finally, it would be wise to allow the Commission to make (or outside petitioners to seek) an emergency listing if the status of the species rapidly changes for the worse.

²⁴⁵ CALIFORNIA FISH & GAME CODE § 2097.1.

²⁴⁶ Compare CALIFORNIA FISH & GAME CODE § 2097.1(c) with 16 U.S.C. § 1533(f)(1)(B). The state law authorizes the adoption of federal recovery plans by the Department. CAL. FISH & GAME CODE § 2097.1(e).

facilitate recovery. CESA could aim for a higher standard for CESA's recovery plans in ways that would facilitate the recovery of species and make CESA operate more effectively overall. Indeed, CESA could support the creation of recovery plans that would have a much more integral role in the CESA regulatory process than federal ESA recovery plans, which are meant to serve only as guidance and planning documents.²⁴⁷

a. Integrating Recovery into CESA Regulation

Most importantly, recovery plans could be used to provide guidance for the development and issuance of incidental take permits, safe harbor agreements, advanced mitigation pursuant to AB 2087, state support for voluntary conservation efforts, permit streamlining, and for mitigation under CEQA. While it is true that private parties may not have an obligation to advance recovery under CESA,²⁴⁸ recovery plans can make clear what kinds of activities would be necessary for effective mitigation – which would often be similar to the kinds of activities needed for recovery (e.g., habitat restoration that is used for mitigation often is also the kind of activity needed for recovery). The recovery plans could be required to provide, where feasible, specific guidance on all these issues, and where permits, agreements, or CEQA mitigation are not consistent with the recovery plans, then the Department or lead agency would have to justify their departure from the recovery plans. Recovery plans might be particularly helpful in guiding advanced mitigation efforts under AB 2087. These kinds of advance analyses would also facilitate permitting streamlining by allowing the Department and landowners to rely on “off-the-shelf” analyses of threats and mitigation for permitting small projects through general permit programs.²⁴⁹ Finally the recovery plans might identify habitat that is important for the recovery of the species and can be a priority for state incentives for landowners to take steps to conserve habitat and encourage recovery, including safe harbor agreements.

These additional requirements for state recovery plans would be above and beyond what is typically done in federal recovery plans, and it is possible that the federal agencies would resist these additional steps. Thus, for species that are both federally and CESA listed and for which there is a cooperative state-federal recovery planning process, the Department may need to do additional work on its own to prepare these additional components. However, it is likely that the cooperative efforts with the federal agencies can lay the groundwork for much of this additional work.

Making recovery plans more ambitious along these lines would address a range of the themes developed in Part III. By building recovery into the overall process of CESA implementation, they would facilitate recovery for species overall. By providing support for more streamlined permitting, they could provide an important form of landowner incentives. Recovery plans – particularly those that are multi-species – can provide for consideration of how to protect and restore ecosystems that support species, advancing ecosystem-level protection. They can also allow for proactive responses to the threats that species face from climate change. Finally, by identifying the kinds of restoration activities that are needed for species, recovery plans could facilitate streamlined or accelerated permit processes for habitat and species restoration projects – something that, as noted above, is urgently needed. Restoration projects consistent with recovery plans could be eligible for categorical exemptions from review under CEQA and from permitting under CESA and other resource protection statutes.²⁵⁰

²⁴⁷ See MORRISON AND BIRKEY, *supra* note 5, at 52-53.

²⁴⁸ I discuss possible changes to this below.

²⁴⁹ This is something that AB 2087 does not do, as it focuses only on the analyses to facilitate the identification of mitigation credits, not on facilitating the identification of what mitigation needs are required for individual projects; see CAL. FISH & GAME CODE §§ 1850-1861 (2016).

²⁵⁰ There is an existing CEQA exemption for these kinds of activities. See 14 CAL. CODE REG. § 15333 (2004) (exemption for small habitat restoration projects that are smaller than five acres). However, applicability of these exemptions could be aided by connecting

b. Recovery and Ecosystem-Level Protection

As noted above in Part III, recovery planning is generally best done at an ecosystem level, where a range of species face similar threats and require similar actions for recovery.²⁵¹ To help advance more ecosystem level management and planning, CESA could authorize and encourage the Department to prepare multi-species recovery plans (something the federal wildlife agencies already do).²⁵²

The recovery planning process can also productively interact with ecosystem level conservation and protection programs, such as the RCIS program under AB 2087 or the NCCP program. The Department could be authorized and encouraged to, where appropriate, combine recovery planning with these programs or at least ensure they are consistent and duplicative effort is minimized. For instance, in areas where an ecosystem level program has already been developed under AB 2087, the NCCPA, or some other program, any newly listed species recovery plans could tier off of that ecosystem level program. Likewise, species or multi-species recovery plans could provide the basis for subsequent RCIS or NCCP analyses. Multi-species recovery plans also might interact productively with any ecosystem-level protection program, as discussed *infra* in Part III.E.

c. The Process for Recovery Planning

Given the higher profile nature of recovery plans that this approach calls for, the recovery planning process will also need to be robust. The planning process should include both a scientific fact-finding component – primarily undertaken by experts within and outside the Department, and subject to peer review – as well as a public component for input about the inevitable policy decisions inherent in recovery planning.²⁵³ Thus, the statute could lay out a dual process – a Department prepared document summarizing the literature and providing recommendations on the required components, and a public notice and comment process for the adoption of a recovery plan. One possibility would be to require Commission approval of recovery plans – however, it is unclear if the Commission would have the capacity to handle this additional workload. Statutory deadlines for the recovery planning process might be helpful, in order to ensure they are completed – but also keeping in mind that they will require the gathering of substantial information, that there may be a dearth of information about many newly listed species, and that there may not be appropriated funds to advance all of them. As such, any deadline should be an extended period after the listing of a species – at least five years.

Finally, the more ambitious recovery plans included here will likely be much more expensive to produce – though the initial costs should repay themselves over time with more streamlined permitting and more effective management and restoration processes. Additional funding sources for developing these plans are discussed *infra*. Nonetheless, such a system is at least feasible, if the political will is available -- Canada's equivalent biodiversity protection law, the Species At Risk Act, has been implemented through more quantitative and expansive recovery plans that facilitate permitting.²⁵⁴

them with similar streamlining under CESA, and also by making it easier to demonstrate that the exemption applies through the use of recovery plans.

²⁵¹ See *supra* Part III.C.

²⁵² See, e.g., SE. REGION, U.S. FISH AND WILDLIFE SERV., SOUTH FLA. MULTI-SPECIES RECOVERY PLAN (1999), <https://www.fws.gov/verobeach/ListedSpeciesMSRP.html>. See, e.g., <https://www.fws.gov/verobeach/ListedSpeciesMSRP.html> (South Florida).

²⁵³ This kind of dual approach is consistent with recommendations about maintaining scientific integrity (discussed above). I develop this point in more detail for CESA more broadly below. See *infra* notes 309-311, and accompanying text.

²⁵⁴ See GOV'T. OF CAN., SPECIES AT RISK PROGRAM: RESULTS-BASED MANAGEMENT AND ACCOUNTABILITY FRAMEWORK AND RISK-BASED AUDIT FRAMEWORK (2008), <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/publications/results-management-accountability-audit-framework/chapter-2.html>.

2. Require recovery to be included in ITP and CEQA analyses

Currently, CESA states that recovery is only the responsibility of state agencies, not private actors.²⁵⁵ However, federal law arguably sweeps more broadly – Section 10 of the federal ESA requires that HCPs not reduce the “likelihood of the survival and recovery of the species in the wild.”²⁵⁶ The incidental take provision of CESA could be amended to impose a requirement that ITPs not interfere with recovery; a more robust change would require the applicant to contribute a proportionate share towards the overall requirements for recovery. Likewise, mitigation under CEQA could specifically require that the lead agency or project proponent contribute a proportionate amount towards recovery of the species.

There would be challenges in developing and applying this requirement: In particular, it would be difficult to determine what the appropriate share of an applicant should be towards recovery.²⁵⁷ However, more fleshed-out species recovery plans could provide guidance as to relatively simple ways that most projects could contribute towards recovery – for instance, identifying in lieu payment requirements that could be paid towards the overall recovery program for the species, or mitigation requirements that are greater than 1:1.

Any changes to require recovery as a component of CESA ITPs might be paired with changes to make compliance with both the federal ESA and CESA ITP programs easier through streamlined and interlocking permitting systems. This would ensure that landowners who face the obligation of contributing towards recovery would receive some additional regulatory benefits in terms of compliance. I develop how such an approach might be constructed in the next section.

Adding recovery into the ITP process would make CESA ITPs more similar to NCCP permits: On the one hand, this might allow CESA ITPs to integrate better with NCCPs; on the other hand, because CESA ITPs don’t have “No Surprises” protections, this change may private actors more reluctant to apply for CESA ITPs by making the standard for ITPs higher.²⁵⁸

C. Take and Incidental Take Permits

This section develops changes to the CESA provisions that regulate the take of listed species and allow for incidental take permits. A basic theme in this section is the possibility of expanding the scope of what species and activities are clearly covered by the CESA take provisions, and increasing the rigor of those provisions, in return for making the incidental take permit program simpler and easier for regulated parties to navigate and implement, and with more regulatory certainty.

1. Clarify that the CESA take prohibition applies to terrestrial invertebrates

The federal ESA protects terrestrial invertebrates against take, but again, because of its definition of endangered or threatened species, CESA may not.²⁵⁹ Revising the definition of endangered and threatened species under CESA to include terrestrial invertebrates would eliminate this difference. Confirming take protection in this way, as with confirming CESA listing to include terrestrial invertebrates, would allow both for greater protection of biodiversity in California and facilitate integration of CESA with the federal ESA. It would also better match California with the majority of states that protect terrestrial invertebrates against take, however defined under the state’s endangered species law.

²⁵⁵ CAL. FISH & GAME CODE § 2052.1 (1998). The ITP provision of CESA also limits the mitigation obligations of permittees to levels that are “roughly proportional” to the impacts of the permitted project on the listed species. CAL. FISH AND GAME CODE § 2081(b)(2) (2018).

²⁵⁶ 16 U.S.C. § 1539(a)(2)(B)(iv).

²⁵⁷ See DALE D. GOBLE, ET AL., WILDLIFE LAW: CASES AND MATERIALS 1076 (3d ed. 2017) (noting this issue).

²⁵⁸ To the extent that the lack of recovery requirements in CESA ITPs is seen as a reasonable tradeoff for the lack of “no surprises” protections in CESA ITPs, then this change would not be desirable.

²⁵⁹ See CAL FISH & GAME CODE § 2080 (2018).

2. Expressly state that take includes habitat destruction

Currently the federal ESA, through implementing regulations issued by USFWS, provides that habitat destruction can constitute take if it “actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering.”²⁶⁰ While implementation of CESA by Department has at times been consistent with treating habitat destruction as take under CESA,²⁶¹ there currently is no regulation on point, nor does the statute explicitly include habitat destruction.²⁶² Given the importance of habitat destruction as a threat to biodiversity, expressly including habitat destruction as a form of take in the Cal ESA would be very helpful to reduce harm to species, advance recovery for the many species threatened by habitat modification, and prevent future changes in policy by the Department. Any changes could track the language of the federal statute so as to reduce uncertainty as to the scope and nature of the prohibition and facilitate integration of CESA permitting with the federal ESA.

3. Clarify the interrelationship between the Native Plant Protection Act and CESA

As noted above, currently the take prohibition in CESA arguably does not apply to acts permitted under the NPPA for plant species listed under both CESA and the NPPA.²⁶³ Given the importance of plants to well-functioning ecosystems and overall biodiversity, increasing the protection for native plants in California should be a priority.

This could be done in two ways: First, CESA could be amended to clarify that the NPPA provisions do not authorize take under CESA of CESA listed plant species. Note that this would give CESA listed plants on private property in California greater protection than federally listed plants would receive. It would still allow designation of plants as “rare” under the NPPA that would receive the lesser protections available under the NPPA, and not the greater protections under CESA.

A second option would be to simply repeal the NPPA, leaving the CESA as the primary statute for protecting endangered plant species in California. Given the weakness of the NPPA, the loss of the NPPA may not have a major impact on biodiversity protection in California. The NPPA could be understood as providing a “halfway house” to listing under CESA that could provide useful, proactive efforts at conservation before CESA listing is required – such that the repeal of the NPPA would be problematic. However, the minimal implementation of the NPPA makes it a weak halfway house – and the establishment of robust prelisting program under CESA (as outlined above) would in fact be a real improvement over the NPPA.

4. Improve mitigation

Mitigation is at the heart of the incidental take program in CESA (as well as the federal ESA). As noted above in Part II.B, there have been criticisms that off-site mitigation for CESA incidental take permits is piecemeal, often not fully completed, and often ineffective. In addition, if mitigation is delayed significantly after a permit is issued, the species may have a temporary decline in habitat or status, even if mitigation is successful. One way to improve mitigation is to encourage advance mitigation (either by permittees or through conservation banks) – as developed in AB 2087. Advance mitigation can be demonstrated to be effective before the permit is issued (reducing uncertainty) and reduces the risk that delays in mitigation will lead to harm to a species. By advancing habitat protection and restoration, it can both promote species

²⁶⁰ 50 C.F.R. § 17.3 (2019).

²⁶¹ For an example of a CESA ITP considering habitat impacts, including a requirement of compensatory habitat protection, see CAL. DEP’T. OF FISH & WILDLIFE, CALIFORNIA ENDANGERED SPECIES ACT INCIDENTAL TAKE PERMIT 2081-2020-056-04, Dolan Road Substation Fence Replacement, available at: <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=186276>

²⁶² See *supra* Part II.A.1.b for more background on the conflicting interpretations here.

²⁶³ See *supra* Part II.A.3.

recovery and advance ecosystem-level protections. The incidental take provision in Section 2081 could be amended to provide a preference for advance mitigation – perhaps by requiring the Department to give bonus credits for it.

5. Repeal fully protected species provisions

The fully protected species provisions in the Fish and Game Code were generally enacted before CESA, as a first effort at species protection. As noted above, they identify specific species that receive heightened regulatory protection, regardless of whether their status requires that protection, and the state cannot authorize incidental take for these fully protected species, unlike CESA or federally listed species that might be in much worse shape, except through the adoption of an NCCP.²⁶⁴ In addition, the fact that these lists are enacted by the legislature makes it more difficult for the lists to be updated based on new information – such as when species have become fully recovered. Repealing these fully protected species provisions is consonant with an adaptive management paradigm that allows for regulation that is more responsive to evolving understandings of the status of listed species. It would also allow for greater flexibility for landowners, allowing for streamlined permitting and other potential incentives to encourage landowner conservation.

6. No surprises policy

As noted above, regulations implementing the ITP/HCP program for the federal ESA create a “no surprises” policy in which the agency cannot demand more from incidental take permittees if “unforeseen circumstances” arise than was originally required in the permit.²⁶⁵ USFWS argues that this policy has been essential in getting landowners to apply for and work with the agency in developing incidental take permits.²⁶⁶ No such provision currently exists under CESA, and the California Supreme Court has held that CESA prohibits the Department from making such assurances.²⁶⁷

Section 2081 could be amended to grant the Department this authority, which would require amending the language in Section 2018 that requires permit recipients to “fully mitigate” the impacts of their actions on the listed species. Such a change would be controversial because environmental groups argue that it places the risk of future changes in conditions that might harm endangered species on the government, not the permittee, and that by locking in permit conditions for extended periods of time, it is inconsistent with principles of adaptive management.²⁶⁸ In addition, giving “No Surprises” to CESA ITPs may reduce the incentive for public agencies or private parties to develop NCCPs, which do provide “No Surprises” assurances.

In making the decision whether to expand “No Surprises” to CESA ITPs, the legislature should consider whether and how it wants to maintain distinctions between CESA ITPs and the NCCP program. If “No Surprises” is extended to CESA ITPs, it might be advisable to effectively have CESA ITPs replace NCCPs in many circumstances by also requiring CESA ITPs to provide for recovery (discussed above) and have CESA ITPs better consider ecosystems and require advance mitigation.²⁶⁹ Alternatively, the legislature might wish to keep the status quo for CESA ITPs (do not extend “No Surprises” to CESA ITPs or require those

²⁶⁴ See *supra* Part II.A.2.

²⁶⁵ See *supra* Part II.A.1.b.

²⁶⁶ Habitat Conservation Plan Assurances (“No Surprises”) Rule, 63 Fed. Reg. 8859 (Feb. 23, 1998) (to be codified at 50 C.F.R. pts. 17, 222).

²⁶⁷ See *Env’t Prot. Info. Ctr. v. Cal. Dep’t of Forestry and Fire Prot.*, 44 Cal. 4th 459, 507, 511-14, 526-27 (2008).

²⁶⁸ See DALE D. GOBLE, ET AL., at 1137.)

²⁶⁹ In this scenario, it is likely that NCCPs would be used less frequently, and most likely by local governments to cover large areas and many ecosystems as efforts to create streamlined, blanket permitting systems. This was the original vision for NCCPs in many ways.

ITPs to include recovery), and instead try to make the NCCP program work better for a wide range of landowners. I develop more on the interaction of CESA and the NPPA below.²⁷⁰

7. Delegated permitting authority

Section 6 of the federal ESA allows states to take over permitting authority under the statute.²⁷¹ California could seek to take over ITP issuance for all federally listed species in the state (assuming they are listed under CESA). This would have a couple of advantages: (1) it would reduce the risk that the federal government, under a hostile Administration, could effectively weaken ESA protection in California by issuing inadequate permits; and (2) it would facilitate even more permitting streamlining by allowing the issuance of a single permit for both federal ESA and CESA purposes by one agency. While the consistency provisions of CESA attempt to provide some of this streamlining and have elements that seek to reduce the risk of federal rollbacks occurring, full delegated permitting authority would make streamlining even more effective (providing important benefits to landowners). This change would also be a stronger guard against federal rollbacks. The more that federal ESA listed species are also listed under CESA, the more effective this delegated permitting program would be. Delegated permitting may require additional funding to operate, which might be covered in part by increased regulatory fees.

A potential obstacle to advancing greater streamlining between federal and CESA ITP issuance is the differences in coverage between the two provisions. As noted above, CESA requires that an ITP “fully mitigate” the impacts of a project on listed species, while the federal ESA ITP program limits mitigation to what is practicable. The “fully mitigate” requirement of CESA also prevents “no surprises” protections for ITP recipients. Finally, the federal ESA ITP might require recipients to contribute towards the recovery of listed species, while the CESA ITP must only impose mitigation that is “roughly proportional” to the impacts of the proposed project. Aligning these standards might facilitate greater streamlining between the federal and state programs – but also would both strengthen the CESA standard (by potentially requiring a contribution to recovery) and weaken it (by allowing “no surprises” protection and feasibility limits). One possibility is to create an alternative CESA ITP standard that permit recipients could elect to enter into that would be consistent with the federal standard and would allow for streamlined permitting. This would allow permit recipients to choose the current CESA option when who prefer to forgo “no surprises” and a feasibility standard in return for not contributing towards recovery. It would be important that even under this alternative pathway for CESA ITPs, the Department should exercise its independent judgment that the federal ITP is doing enough to provide for recovery such that “no surprises” promises and a feasibility standard ensure a net gain in conservation for the species.²⁷²

8. Streamlined permits or exemptions for restoration projects

Restoration of species, their habitat, and of ecosystems are crucial to the recovery of listed species and protection of biodiversity in California. However, restoration projects can get caught in significant permitting obstacles, particularly where they present a risk of short-term and small-scale harm to listed species. In addition, regulators may be concerned about the effectiveness of proposed restoration projects and whether they will provide the long-term benefits they promise. However, if more robust recovery plans are created

²⁷⁰ Another factor to consider in deciding whether to extend “no surprises” to CESA ITPs is the on-the-ground reality of enforcement for existing ITPs. To the extent that the Department is already unable to check on the adequacy of existing ITPs and whether circumstances have changed for species covered by those existing ITPs, it may be that permittees are effectively getting the benefits of a “no surprises” policy in any case. Codifying that policy might both provide some political benefits (in terms of outreach to landowners) and allow the Department to properly consider, up front, the implications of these guarantees when it approves ITPs.

²⁷¹ See 16 U.S.C. § 1535(c), (g)(2).

²⁷² If the federal ITP did not have a recovery component, such a component could be added by the Department, though this would undermine the streamlining function of joint permitting. To facilitate streamlining, such additional recovery obligations could be made through monetary payments to support the recovery program for the species.

that can outline up front the needs and methods for recovery of listed species, these plans can be the basis for streamlined approvals for restoration projects, or even creating explicit exemptions from CESA ITP requirements where proposed restoration projects are consistent with approved recovery plans.

9. Prelisting take exemptions

As described above, I propose adding a system by which the Commission could identify specific actions that, if taken, would obviate the listing of a species under CESA. As part of that process, the Commission (or the Department, following guidance set by the Commission) could identify specific actions consistent with this prelisting process that, if taken by landowners, would allow those landowners exemptions from take under CESA if the species was listed. This exemption process would be similar to the CCAA system under the federal ESA.²⁷³ It would also be similar to exemptions under NCCPs, which also allow for exemptions for take for species listed in the future²⁷⁴ – but it would be species-focused, rather than ecosystem-focused as under NCCPs. Thus, this process may be more feasible to roll out for species that are not currently in areas covered by NCCPs. This change would both add incentives for landowners to undertake positive actions to advance species protection, and also encourage proactive efforts to address declining species before they are listed.

D. Jeopardy

This section develops amendments that would allow the combination of CESA and CEQA to provide more rigorous protection for endangered species against government action that might cause extinction to CESA-listed species.²⁷⁵

1. Articulate and implement effective prohibitions against state actions that would jeopardize the existence of listed species

The federal ESA almost completely prohibits federal agencies from doing actions that would jeopardize the existence of listed species – this prohibition is implemented through a process by which federal agencies consult with USFWS or NOAA about whether their actions would cause jeopardy.²⁷⁶ CESA used to have a similar consultation process, but that process was eliminated in the late 1990s.²⁷⁷

Currently, there are a few protections against state action that might cause jeopardy under CESA. First, Section 2053(a) makes it state policy that agencies should not jeopardize listed species, though it has no enforcement process, and Section 2054 allows for the use of mitigation in such circumstances if alternatives that would avoid jeopardy are infeasible.

Second, in general CESA ITPs cannot cause jeopardy²⁷⁸ – this means that state agency actions that cause take are prohibited from causing jeopardy. However, there may still be state actions that do not directly cause take but might still cause jeopardy – for instance, because the harm to the species operates through habitat

²⁷³ See U.S. Fish and Wildlife Service and National Marine Fisheries Service, Safe Harbor Agreements and Candidate Conservation Agreements with Assurances; Announcement of Final Safe Harbor Policy; Announcement of Final Policy for Candidate Conservation Agreements With Assurances; Final Rule and Notices, 64 Fed. Reg. 32705 (June 17, 1999).

²⁷⁴ See CAL. FISH & GAME CODE 2805I (2015).

²⁷⁵ I do not propose any changes to CESA that would mimic the critical habitat provisions of the federal ESA. That is in part because the effectiveness and feasibility of those provisions have been highly controversial. It is also because CEQA provides important, analogous habitat protection.

²⁷⁶ See 16 U.S.C. § 1536(a)(2). This review rarely stops projects, and instead usually leads to project modifications that reduce impacts on listed species. See Dave Owen, *Critical Habitat and the Challenge of Regulating Small Harms*, 64 FLORIDA L. REV. 141 (2012).

²⁷⁷ See Part II.A.1.c, *supra* note 98.

²⁷⁸ CAL. FISH & GAME CODE 2081(c) (2018).

modification that is outside the scope of CESA's take prohibition, or because the harm is relatively indirect and long-term – the most important example of this latter category might be greenhouse gas emissions from a state project.

Third, and most importantly, state actions that might affect CESA listed species are reviewed through the CEQA process – if a state action might adversely affect a listed species or its habitat, that triggers a mandatory determination of significance and an EIR (unless the state action will fully mitigate those impacts).²⁷⁹ The lead agency is also required to consult with the Department about the impacts on listed species.²⁸⁰ For the EIR, the standard CEQA requirements apply, as summarized in Part I.A – mitigating adverse impacts to listed species to the extent feasible, unless a statement of overriding considerations is adopted.

Overall, the CEQA process accomplishes much of what the federal ESA Section 7 consultation accomplishes – it requires analysis of impacts to listed species, and mitigation of those impacts, with a public process and the potential for consultation with the expert wildlife agencies if they participate in the CEQA process. However, there are some ways in which the CEQA process could be improved to better match the Section 7 consultation standards. Such an improvement would eliminate a significant gap in CESA protections for endangered species.

It might be helpful to codify in the statute the provision of the CEQA Guidelines that require an EIR for a project “has the potential to . . . substantially reduce the number or restrict the range of an endangered, rare or threatened species.”²⁸¹ This would provide more security for this mandatory finding requirement. In addition, providing some clarity around what “substantial reduce” means would be important – as it stands, lead agencies have broad leeway to determine whether this standard is met, and therefore whether substantial CEQA review or mitigation might occur in the first place. However, specifying what this standard would be ex ante for a wide range of species and the impacts from particular projects would be difficult through either statutory or regulatory language. Instead, it might be preferable to have the Department review determinations that projects do not “substantial reduce” an endangered species through an interagency consultation process. This might raise important funding and resource issues for the Department. To reduce costs and delays, this review process could involve a mandatory notification of all such findings to the Department for all projects that do not fall within exemptions to CEQA, with a limited timeframe for Departmental review and objections – if the Department did not respond in that timeframe, the CEQA review could proceed as planned.

Next, nothing in CEQA prevents agencies from taking actions that would jeopardize the existence of a listed species, so long as the agency adopts a statement of overriding considerations and so long as the agency avoids incidental take.²⁸² For instance, an agency's actions might cause serious harm to a species as a whole without directly affecting individual members of a listed species by, for instance, destroying crucial breeding habitat while it is unoccupied. A legal guardrail could be developed prohibiting any agency from taking an action that would jeopardize the existence of a listed species – this could be done either through an amendment to CEQA or by making the policy statement in Section 2053(a) of CESA enforceable. Building the jeopardy review into the CEQA process would have the advantage of avoiding confusion about whether two different consultation processes exist and possible redundant reviews and duplication of effort – a criticism that was levied against the prior CESA consultation process.

²⁷⁹ Mandatory Findings of Significance, 14 CAL. CODE REGS. § 15065(a) (1997).

²⁸⁰ CAL. PUB. RES. CODE § 21104.2 (2004). Consultation with the Department, which has expertise in wildlife management and conservation, can ensure that the lead agency does not minimize or ignore important impacts on biodiversity from their actions. See Eric Biber, *Too Many Things to Do: How to Deal with the Dysfunctions of Multiple-Goal Agencies*, 33 HARV. ENV'T. L. REV. 1 (2009); Holly Doremus, *Through Another's Eyes: Getting the Benefit of Outside Perspectives in Environmental Review*, 38 BOSTON COLL. ENV'T. AFF. L. REV. 247 (2011).

²⁸¹ CAL. CODE REGS. Tit. 14 § 15065(a)(1).

²⁸² See Part II.A.6, *supra* note 98.

Some exemption process for actions that would otherwise cause jeopardy is certainly needed for projects of high-level importance to the state. Under the old CESA consultation process, a lead agency could articulate its own conclusions that an exemption was required, and then only had to adopt mitigation for the impacts on the species.²⁸³ To the extent an exemption process might be desirable, instead of allowing the lead agency to trigger the exemption, CESA could require a finding by the Governor, in consultation with the Commission and the Department, as to whether an exemption was warranted. The Governor could also determine what mitigation requirements to impose, drawing on recommendations from the Department, and again requiring specific findings by the Governor if mitigation diverged from the Department's proposals.

To minimize the burdens of both the review process and the jeopardy standard on lead agencies, it is probably best to limit the jeopardy review and restriction to projects funded or carried out by state or local agencies – rather than including private projects that are approved or permitted by state or local agencies.²⁸⁴ This is a narrower scope than either CEQA or the old CESA consultation provision. It is also narrower than the scope of Section 7 consultation for the federal government. However, compared to the federal government, state and local governments in California permit and review a much wider range of private activities. The burdens of CEQA review on state and local permitting and review of private activities have long been a political flashpoint, particularly in the housing context.²⁸⁵ Moreover, these private activities would already be covered by the ITP program that separately prohibits jeopardy. Thus, with respect to private activities permitted or reviewed by state or local governments, the only loss from excluding them from the jeopardy standard would be for private activities that might cause jeopardy but not cause take – a universe of projects that should, in general, be relatively small.

In addition, currently lead agencies have broad discretion under CEQA to assess the level of impacts on CESA listed species, to determine if mitigation is adequate, and to adopt statements of overriding considerations for any significant impacts to species.²⁸⁶ However, lead agencies may not have the level of expertise in endangered species protection and management that the Department has; moreover, they may have incentives to minimize impacts and mitigation requirements in order to facilitate project approval.²⁸⁷ One option would be to require agencies to justify any departure from Department analyses of impacts and mitigation requirements. This would be consistent with the standards that apply for Section 7 consultation at the federal level.

2. Increase protection against jeopardy from incidental take permits

The current standard for CESA ITPs prohibits issuance of an ITP if it “would jeopardize the continued existence” of a listed species.²⁸⁸ However, generally there is significant uncertainty about the status and needs of listed species, and so it may be difficult to prove that a particular ITP would jeopardize the existence of a listed species. More protection would be provided if the standard were modified to prevent issuance if it would not be “likely” to jeopardize the existence of a listed species.²⁸⁹ A similar change could be made to the policy statement in Section 2053.

²⁸³ Manthripragada, *supra* note 101, at 10653.

²⁸⁴ See Manthripragada, *supra* note 101, at 10651 (making this proposal for narrowing the scope of a CESA consultation process).

²⁸⁵ See Moira O'Neill, *et al.*, *Developing Policy from the Ground Up: Examining Entitlement in the Bay Area to Inform California's Housing Policy Debates*, 25 HASTINGS ENVTL. L.J. 1 (2019).

²⁸⁶ See Part II.A.6, *supra* note 98.

²⁸⁷ See Biber, *Too Many Things To Do*, *supra* note 280 (noting the risk that agencies may shape the information and analysis they produce to advance their own goals and mission).

²⁸⁸ CAL. FISH & GAME CODE 2081(c).

²⁸⁹ Manthripragada, *supra* note 101, at 10651-52.

3. Clarify that the goal of CESA is protection in the wild

Currently CESA does not specify that the goal is recovery of species in the wild, and in theory it is possible for the Department to make decisions based on the possibility of a species surviving in captivity. Greater protection for listed species would be provided if it was made clear that the goal of CESA is recovery in the wild, and that does not include protection only in captivity.²⁹⁰ This could be accomplished through amendments to the definition of conservation in Section 2061, and to the policy statement on jeopardy in Section 2053.

E. Ecosystem Level Protection

1. Voluntary Ecosystem Protection Program

As noted in Part III, a central criticism of the federal ESA is that by focusing only on individual species, the ESA intervenes far too late and in an inefficient way.²⁹¹ If ecosystems are protected, then the species that are components of those ecosystems will also be protected, and that will reduce the need for costly intervention later on. Moreover, ecosystem level protections can help facilitate adaptation of species to new climatic conditions by facilitating the protection or creation of migration corridors and alleviating other threats to species. Finally, ecosystem-level protection at a voluntary level might help provide positive incentives for landowners to manage lands in ways that help all species, not just listed species. These insights are already being implemented in state law through both the NCCPA and the Regional Conservation Investment Strategies under AB 2087. However, the NCCP process is time-consuming and resource-intensive. And RCISs only support voluntary conservation efforts by facilitating advance mitigation and depend on proposals developed by individual public agencies; they do not provide take authorization.

The state could consider expanding or supplementing the programs being developed under the NCCPA and AB 2087 by creating an ecosystem level protection program through CESA. This program could fill in the gap between the NCCPA and RCIS programs, providing greater flexibility than the NCCPA, but more regulatory opportunities than the RCIS. Alternatively, any such program could be created as an extension of existing programs, such as AB 2087.²⁹²

Elements of such a program could include having the Department determine the status of ecosystems/ecoregions around the state, what threats they face, and what actions need to be taken to restore or maintain them. This process would be similar to what already is occurring under AB 2087, but done on a systematic basis, rather than depending on the initiative of individual public agencies.

The program could also provide state support for voluntary conservation measures by landowners that advance the conservation of these ecosystems. The Department might identify in advance what lands and actions would be helpful for conservation – again, similar to AB 2087, making it easy for landowners to understand what they could do to potentially receive state support. The state could provide tax credits (either in a lump-sum or on an annual basis), or direct payments (either in a lump-sum or on an annual basis) for landowners who participate in these programs. Lump-sum payments might be directed towards permanent conservation steps (such as conservation easements). Annual payments might focus on active landowner management efforts to improve ecosystem status (similar to safe harbor programs), or temporary agreements to protect habitat. These voluntary measures also could leverage the federal tax credit for conservation easement donations, if permanent conservation easements were given. The Department could conduct active outreach programs in priority ecosystems to encourage landowner participation.

²⁹⁰ Manthripragada, *supra* note 101, at 10654.

²⁹¹ See Part III.C, *supra* note 98.

²⁹² This alternative option may be more administratively and practically feasible, as it would allow the Department to build on its existing programs and staffing. Of course, any such expansion would require additional staffing and funding, and the existing AB 2087 and NCCPA programs are already understaffed and underfunded.

The state might also draw on a dedicated funding source to provide block grants to counties. The counties could use those block grants to implement programs identified by the Department that are needed for ecosystem restoration, including support for development of NCCPs (as discussed below).

The Department could identify ecosystem-specific performance measures for these voluntary ecosystem protection efforts. These measures could be drawn upon in assessing listing proposals for species associated with these ecosystems, or for delisting proposals. The performance measures could be similar to the ones currently used by USFWS for its assessment of whether voluntary conservation measures can support not listing a species under the federal ESA.²⁹³ That policy requires USFWS to assess how effective the measures are, and how certain they are to be implemented. Any assessment should only look at past or current conservation measures, not promised future ones. The assessment could also be the basis for the Commission's development of triggers for prelisting efforts to avoid the listing of species under CESA, as described above. The assessment could also be the basis for granting limited CESA take exemptions for actions by individual landowners that, by restoring ecosystems, benefit species that are subsequently listed – as discussed above.

Overall, this program is a more robust version of AB 2087 – it provides for systematic ecosystem assessments that could then be the basis of mitigation credits, without depending on the initiative of individual public agencies to set up the program.²⁹⁴ Because of its focus on voluntary, cooperative measures, it would help advance incentives for landowners. Its focus on ecosystems would address concerns that biodiversity laws are too species-focused, and too reactive to individual projects and individual species. It would also support more proactive efforts for conserving species before they became listed.

2. A possible synthesis for ITPs and ecosystem protection programs and the role of the NCCPA

If the full range of proposals for ITPs and ecosystem protection developed in this Article were adopted, the result would be:

A CESA ITP program that has an option for “no surprises” and a limitation on mitigation based on feasibility, in return for permit recipients providing support towards recovery for listed species, and for the opportunity for streamlined compliance with the federal ESA ITP program for jointly listed species.

A voluntary ecosystem protection program that would provide guidance and pre-approval for mitigation and restoration efforts that could serve as compliance under CESA. This program would provide an intermediate, ecosystem-level program between RCISs and NCCPs.

Where would these changes leave the NCCPA? Making CESA ITPs more ambitious (to include recovery) and secure for permittees (by providing “no surprises” assurances) and eliminating fully protected species would greatly narrow the current differences between CESA ITPs and NCCPs. A robust pre-listing protection program that is built into CESA would also reduce another key reason to do NCCPs, which currently are the primary option for landowners to receive protections for species listed in the future. The NCCPA, as noted above, has received criticism as setting up a costly and time-consuming process for permitting.²⁹⁵ With fewer reasons to do NCCPs, we would likely get fewer applications. Would this diminish the role of ecosystem-level planning – a result that is in tension with the widespread support for greater ecosystem-level management in biodiversity law?

²⁹³ See U.S. Fish and Wildlife Service and National Marine Fisheries Service, Policy for Evaluation of Conservation Efforts When Making Listing Decisions, 68 Fed. Reg. 15100 (2003).

²⁹⁴ Alternatively, it could be separated from AB 2087 by providing that voluntary conservation measures in this ecosystem program would not be available for advance mitigation for currently listed species. The latter approach might be preferable if there are concerns about dramatically increasing the number of mitigation credits available and the development that that increase might facilitate. This option would reduce the incentives for landowners and local governments to participate in ecosystem protection efforts.

²⁹⁵ See Part II.A.4, *supra* note 98.

Here, the voluntary ecosystem protection program could play a crucial role in incentivizing ongoing ecosystem-level protection. Effective use of this program might facilitate development of NCCPs down the road, as the voluntary program could facilitate the collection of the needed data and planning that is currently such an obstacle for NCCP development.

One possible future role for the NCCPA would be to provide greater encouragement for local governments to adopt NCCPs as streamlining tools, by providing “one stop” permitting options for the federal ESA, CESA, and other resource protection statutes. Placer County has been pursuing an approach along these lines, though it has taken many years and millions of dollars to come to fruition.²⁹⁶ Placer County’s experience shows the promise and the pitfalls of this approach. Greater support for local governments to pursue these options as part of their general planning process for land-use regulation could perhaps encourage a revival of NCCPs at the scale at which they are best developed. Grants or other support from the state government would help advance this possibility. In addition, more robust recovery plans could provide important building blocks for developing NCCPs, as could the ecosystem-level incentive programs outlined above.

F. Enforcement, Funding, Incentives, and Facilitating Regulatory Compliance

1. Citizen suit enforcement

The federal ESA allows for private parties to both sue the relevant agencies to ensure they implement the Act, and also to sue private parties alleged to be in violation of the Act.²⁹⁷ Under California administrative law, plaintiffs may file lawsuits against implementing agencies, but not against private parties alleged to be in violation.²⁹⁸ Providing citizen suit enforcement against private actors would increase the incentive for those actors to comply with CESA – making this change depends on the extent to which one believes that lack of enforcement, rather than litigation, is the more important limitation to the success of biodiversity laws in general. It is also a change that is probably neither feasible nor desirable without being paired with making compliance easier and more attractive for private actors through incentives and streamlining.²⁹⁹

2. Administrative Enforcement

Currently, CESA enforcement proceeds primarily through the judicial system, requiring the Department to persuade county district attorneys to pursue litigation against alleged violators. Because these district attorneys are locally elected, they may be reluctant to pursue cases that are politically unpopular at the county-level. This significantly reduces the effectiveness of the Department’s enforcement system. Administrative processes allow the Department to pursue violations independently, with proceedings that are less costly and time-consuming. While administrative proceedings are limited to imposing civil penalties (fines and compliance orders), they nonetheless may provide more effective and certain enforcement than the current system. Revamping the Department’s existing administrative system to make it more effective and more streamlined could therefore have real value.

3. Small Landowner compensation

Small landowners with limited economic resources may be disproportionately affected by land-use regulation through CESA. The state could provide limited compensation to offset these impacts, with a cap on the maximum amount any one landowner could receive in a lifetime (or if a corporate owner, a maximum

²⁹⁶ See <https://www.placerconservation.com/>. For cost, see <https://www.placerconservation.com/cost—funding.html>.

²⁹⁷ 16 U.S.C. § 1540(g).

²⁹⁸ See CAL. CIV. PROC. CODE § 1094.5.

²⁹⁹ Without such a pairing, increased risk of litigation and enforcement may simply increase the perverse incentives landowners can face to avoid protecting listed species or their habitat.

amount one corporate entity could receive). A plausible maximum might be \$1 million. Any funding for this compensation would come from a dedicated revenue stream separate from funding for CESA conservation and management programs.³⁰⁰ In return for the funding the state could require more permanent protection of the land than might otherwise be achieved through CESA, such as through conservation easements.

4. Landowner incentives

CESA could provide incentives for landowners who undertake efforts to help conserve listed species. These incentives would be distinct from regulatory assurances such as for any prelisting conservation efforts or no surprises (as these incentives would be monetary), any ecosystem level protection program (because they would focus on individual species), and any small landowner compensation program (which focuses on impact to landowners, rather than on encouraging important conservation efforts). These could involve lump-sum or regular payments to landowners who undertake activities above and beyond what is required under CESA to protect listed species – for instance, affirmative efforts to improve species habitat, or protecting habitat needed for recovery that would not be covered by take regulations.

If such a program was developed, funding should come from a dedicated revenue stream (like landowner compensation).³⁰¹ This program could be guided by recovery plans, which could identify habitat or actions that are important for species recovery. It could also be operated in coordination with the ecosystem level protection program.

One question to resolve is whether landowners who participate in safe harbor agreements should be eligible for these payments – given that safe harbor participants are already getting a valuable benefit (protection for take protections), it may be the better practice to conserve limited resources by focusing incentive payments on landowners not in the safe harbor program. On the other hand, it is possible that there would be greater landowner participation in any incentive program if payments were paired with safe harbor assurances, and the amount of money that landowners would require for participation might be significantly less if they also received safe harbor assurances.

5. Funding and dedicated revenue streams

As noted in Part II.B, securing consistent funding for operating the Department's endangered species program has been an ongoing challenge. Moreover, environmental groups and others may be more likely to support incentive programs and landowner compensation programs if it is clear that the funding for those programs will not come at the expense of funding for endangered species enforcement, conservation, and management. Enactment of fee schedules for CESA permits have alleviated some of the funding program,³⁰² but there are still major funding deficiencies for CESA implementation in the Department.

One option would be to create a specific funding source for CESA implementation, though any new tax would of course require a two-thirds legislative majority. That funding source could provide a dedicated revenue stream for land acquisition and management, for landowner incentive and compensation programs, for block grants to counties to implement NCCPs and other ecosystem-level protection programs, and for a statewide biodiversity monitoring program. To reduce concerns that landowner incentive and compensation programs might take away funds for other conservation programs, there could be a maximum percentage of the funding source that can be used for those programs.

³⁰⁰ Separating the funding stream is intended to alleviate concerns that landowner compensation would come at the expense of funding for enforcement of CESA or recovery of listed species. A tax credit could accomplish the goal of providing compensation while avoiding impingement on other CESA funding.

³⁰¹ Again, this may help to address concerns that the funding for incentives would come at the expense of other CESA activities, and tax credits could be used to accomplish this.

³⁰² CAL. FISH & GAME CODE § 2081.2.

6. Small project/landowner permit streamlining

Small projects and small landowners may struggle with CESA compliance – they may not have financial resources to obtain expert advice for permit application and approval; they may not have the time to participate in a long permitting process; they may be intimidated by a complex and technical area of law. Facilitating compliance for these entities can reduce opposition to CESA implementation and encourage more effective on-the-ground conservation. Streamlining might be obtained through a variety of tools.

One option are general permits, permits that require minimal (or sometimes no) paperwork by permit applicants, greatly reducing permit compliance burdens for applicants.³⁰³ They are used in a number of other regulatory contexts, including under the federal Clean Water Act and under the Porter-Cologne Act in California.³⁰⁴ CESA could authorize the Department to issue general permits under its incidental take program. For instance, the Department might conclude that small-scale land clearance activities within the range of a specific listed species can be compensated for with a set, per acre mitigation fee with minimal notice to the Department.

There are limits to the utility of general permits in the context of biodiversity protection. What constitutes a threat or a negative impact to one species may be neutral or even beneficial to another, and even for the same species changing the timing and location of a project may mean the difference between a dire threat to a species or a minimal impact. Thus, general permits will likely need to be tailored to specific species or ecosystems, and likely also limited to particular activities or sets of activities. Nonetheless, this still leaves room for an important role for this kind of permitting approach. FWS has developed “low-impact HCPs” that have relatively rapid review and permitting for activities that are known to have low impacts on listed species, for instance.³⁰⁵

There are other risks from general permits. They might result in very weak permit terms that are not effectively enforced and that do not adequately account for the cumulative impacts they create.³⁰⁶ One way to reduce these risks is to cabin how the Department issues general permits. The Department could be required to have a species recovery plan developed that specifically identifies when general permits are appropriate for a species, in what contexts, and what mitigation is appropriate. As an additional protection, general permits could only be allowed where the Department concludes that a range of actions to be covered by the general permit either (a) presents a minimal risk of harm, individually and cumulatively; or (b) the risk of harm by the actions covered by the general permit are generally similar and any harms can be effectively mitigated for the actions as a group.³⁰⁷ General permits would not be appropriate for large-scale projects, for projects that present unique and unusual harms to the species, and for projects where the harms to the species are specific to the particular location of the project, and therefore cannot be easily mitigated.

There are a range of other potential streamlining options, some of which have already been developed in this Article. One previously analyzed alternative is having California take over delegated permitting authority from USFWS for federal ESA, reducing overall compliance burdens for all landowners.

Another alternative is to make clear determinations that certain small-scale activities are not covered by CESA. The Department could, *ex ante*, identify a range of activities that would present no risk of harm at all

³⁰³ Eric Biber & J.B. Ruhl, *The Permit Power Revisited: The Theory and Practice of Regulatory Permits in the Administrative State*, 64 DUKE L.J. 133, 155-59 (2014).

³⁰⁴ See *id.* at 160-63 (overview of use in Section 404 context). For California examples, see, e.g., California State Water Resources Control Board, General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (July 1, 2015), available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/igp_20140057dwq.html.

³⁰⁵ See U.S. Department of Interior, Fish and Wildlife Service and U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Habitat Conservation Planning and Incidental Take Permitting Handbook, at pp. 13-11, 16-12, 16-16, G-18 (2016) (noting concept of low-effect HCPs, procedural streamlining available for them, and defining concept).

³⁰⁶ See Biber & Ruhl, *supra* note 303 at 190-97, 204-06, 229-30.

³⁰⁷ See Biber & Ruhl, *supra* note 303 at 228-30. This framework models the general permit standard under the federal Clean Water Act. 33 U.S.C. 1344(E)(1).

to listed species. While these activities in theory would not be in violation of CESA (and would be regardless of the Department's decision), giving specific guidance to landowners and applicants would facilitate compliance and reduce uncertainty and confusion. These exemptions could be identified in species recovery plans.

Outreach and technical support, and on-site compliance determinations can be another set of useful tools to aid small landowners. The Department might create a program where staff, on landowner request, can visit a property and give a determination about whether the landowner's activities would or would not require further CESA permitting.³⁰⁸ A staff determination that no permitting is required would be binding on the agency. Funding for such a program might be provided through a dedicated funding stream, or a regulatory fee program for landowners who make requests (with a process for waiving the fee for low-income applicants).

G. Data and Science

This section covers the role of information in CESA implementation – both information about CESA implementation, and the scientific information about species and ecosystems necessary for the operation of CESA.

As noted above, historically there are significant gaps in current data about implementation of CESA. While it is not perfect, the federal wildlife agencies have produced extensive data on their implementation of the ESA, including issuance of ITPs, status and implementation of recovery plans, Section 7 consultation documents, and more.³⁰⁹ The recent increases in data availability from the Department on CESA documents, particularly ITPs, but also species status reviews, in addition to the preexisting information about NCCPs and RCISs are significant improvements that will pay off over time in helping the Department and the public assess how well CESA is working. A better understanding of the implementation of CEQA with respect to species protection would also be valuable – while many CEQA documents are available online,³¹⁰ there has not yet been a systematic assessment of how CEQA reviews assess impacts on biodiversity, on the mitigation required, or the effectiveness of that mitigation. Work along these lines would provide a valuable contribution to CESA implementation going forward.

The effective use of scientific information in CESA requires maintaining the integrity of that data, as well as the transparent use of the data along with the essential value and policy choices inherent in biodiversity decisionmaking. Departmental regulations already provides for a limited use of peer review for listing documents.³¹¹ Providing greater transparency and publicity for the scientific documents that are the underpinnings of Departmental and Commission decisionmaking – and ensuring that those documents are initially prepared by scientists within the Department that are protected by civil service protections – can help ensure both integrity of science within the process as well as make transparent the value and policy choices that the Department and Commission will make based on that science. Codifying the existing departmental regulations on peer review in state law (so they cannot be revoked) and providing transparency and separation mandates for the preparation of key scientific information for CESA could help advance scientific integrity in the context of CESA.

³⁰⁸ As noted above, even agency outreach and technical support can be important to improve cooperation with landowners. See Part II.B, *supra* note 98.

³⁰⁹ The USFWS database with this information is available at: <https://ecos.fws.gov/ecp/>

³¹⁰ See <https://ceqanet.opr.ca.gov/>.

³¹¹ See *supra* note 26.

V. CONCLUSION

The changes proposed in this Article, even if adopted only in part, would impose substantial new responsibilities on the Department. As noted above, a key obstacle to current Departmental efforts to implement CESA is the adequacy and reliability of funding. Reforming CESA – including making the statute more helpful to landowners – will require more resources, in addition to what is already required to adequately implement CESA in its current form. A plausible estimate of the additional staffing and funding requirements for implementation of *all* of the proposals in this Article is 300 new full-time staff members, with a cost of 50-60 million dollars per year. That cost may be beyond the scope of what is realistic at the current moment – which would advise in favor of implementing the ideas in this Article over time. But reforms, if they are to be done well and effectively, should be funded by the legislature.

The global biodiversity crisis will not spare California. The state and the governor have (rightly) declared that protecting biodiversity in California is an important policy goal. Achieving that goal will require updating CESA to meet the challenges of the twenty-first century – making the statute more comprehensive, more flexible, more proactive, more ecosystem-focused, and more supportive of landowners.

Table 2: Tracking Proposals for CESA Changes to Themes Developed in

Part II

	Listing	Recovery	Take	Jeopardy	Ecosystem Level	Enforcement, Funding & Compliance	Data and Science
Prioritization	<ul style="list-style-type: none"> Standards for listing populations 						
Landowner Incentives	<ul style="list-style-type: none"> Prelisting program Automatically list federally listed species 	<ul style="list-style-type: none"> Revive recovery planning Delegated permitting authority 	<ul style="list-style-type: none"> Repeal fully protected species No surprises for ITPs Prelisting take protections 		<ul style="list-style-type: none"> Voluntary Ecosystem Protection Improve NCCPA 	<ul style="list-style-type: none"> Small landowner compensation Landowner payments for active management Streamlined permitting 	
Ecosystems & Adaptive Management	<ul style="list-style-type: none"> Protect invertebrates Clear listing standards Prelisting program 	<ul style="list-style-type: none"> Revive recovery planning 	<ul style="list-style-type: none"> Clarify habitat modification Clarify protection for invertebrates Clarify role of NPPA Improve mitigation Repeal fully protected species 	<ul style="list-style-type: none"> Recovery “in the wild” 	<ul style="list-style-type: none"> Voluntary Ecosystem Protection Improve NCCPA 		

			<ul style="list-style-type: none"> Streamlined restoration permitting Prelisting take protections 				
Recovery		<ul style="list-style-type: none"> Revive recovery planning Include recovery in ITQ and CEQA 	<ul style="list-style-type: none"> Clarify habitat modification Improve mitigation Streamlined restoration permitting 	<ul style="list-style-type: none"> Implement jeopardy protections Recovery “in the wild” 			
Climate Change	<ul style="list-style-type: none"> Protect populations 	<ul style="list-style-type: none"> Revive recovery planning 			<ul style="list-style-type: none"> Voluntary Ecosystem Protection 		
Politics, Litigation and Science	<ul style="list-style-type: none"> Clear listing standards 					<ul style="list-style-type: none"> Citizen suit enforcement 	<ul style="list-style-type: none"> Data reporting on CESA implementation Public disclosure of underlying scientific documents
States	<ul style="list-style-type: none"> Automatically list federally listed species Protect invertebrates 	<ul style="list-style-type: none"> Delegated permitting authority 					