CHAPTER 1

An Introduction to Pre-Listing Conservation

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ABSTRACT

The US Endangered Species Act has been successful in preventing extinction. From other perspectives, however, it has underperformed, is fraught with challenges, and is in need of reform. At the forefront of challenges is a reactive framework that sometimes leads to perverse incentives and legal battles that strain support and resources. Given the challenges of species recovery, programs focused on conserving species before they require Endangered Species Act listing have the potential to provide conservation and economic benefits, including aligning the interests of project developers, private landowners, conservation advocates, and government agencies. Pre-listing conservation programs can complement and improve the performance of existing ESA programs by encouraging actions that achieve net conservation benefits for at-risk species upstream of costly regulation. However, strong incentives will be needed in order to do so at the scale needed. *Proactive Strategies for Protecting Species* explores the perspectives, opportunities, and challenges surrounding design and implementation of pre-listing conservation approaches to species conservation. The volume brings together diverse stakeholder perspectives across different sectors on at-risk species conservation and provides a legal, biological, sociological, financial, and technological foundation for designing solutions for incentivizing species conservation upstream of regulation. Last, it explores case

studies of at-risk species that could benefit from pre-listing conservation approaches and discusses both the opportunities and challenges ahead. Properly designed and implemented, pre-listing conservation programs have the potential to deliver more funding for species conservation and stronger incentives for environmental stewardship on private lands.

INTRODUCTION

From the perspective of species extinction, the US Endangered Species Act (ESA) has been a success (Male and Bean 2005). Of the over two thousand species protected by the ESA, only ten have gone extinct after listing (Langpap and Kerkvliet 2010; USFWS 2014). Yet the ESA it is not without challenges and failures. For example, only thirty delistings have occurred (covering twenty-five species) declaring a species or population recovered (USFWS 2014a). At the forefront of the challenges facing the ESA is a reactive framework that often leads to perverse incentives and legal battles that strain support and take resources from programs that are already underfunded (Brook et al. 2003; Stokstad 2005). Between 2008 and 2012, the federal government defended more than 570 ESA-related lawsuits, which cost taxpayers more than $15 million in attorney fees alone (Hastings 2012). This spending is significant given that annual recovery plan implementation budgets for the US Fish and Wildlife Service (USFWS) are around $65 million (GAO 2005).[1] While citizen involvement and litigation play an important role in species protection (Brosi and Biber 2012), we suspect most people would welcome seeing fewer dollars spent in the courtroom and more on species recovery.

In September 2011, following an agreement with plaintiffs, the USFWS announced a six-year plan to review and address the more than 250 species listed as candidate species under the ESA (Environment News Service 2011). In addition to candidate species, the USFWS agreed to make ninety-day findings on more than six hundred citizen petitions for the protection of at-risk species over the next two years. Pursuant to

1. The National Marine Fisheries Service (NMFS) and the USFWS share the responsibility of implementing the ESA. The NMFS manages marine and anadromous species, while the USFWS manages land and freshwater species. Although this volume focuses on terrestrial and freshwater species, and subsequently the USFWS, much of its information is applicable to NMFS and the species it manages. For simplicity, we refer only to the USFWS in this volume. In most cases, however, the USFWS and the NMFS could be used interchangeably.

section 50 CFR 424.02 of the ESA, "candidate" means any species being considered by the Secretary of Interior or the Secretary of Commerce "for listing as an endangered or a threatened species, but not yet the subject of a proposed rule" (USFWS 2004). Candidate species are not subject to ESA legal protections. Many environmental proponents view the candidate status as a loophole that denies species the legal protection they deserve; some species have been on the candidate list for decades. Yet the USFWS commonly faces an overwhelming workload with an underfunded budget, due in part to a steady stream of petitions and legal challenges. The USFWS states the new plan for candidate species will make ESA implementation "less complex, less contentious, and more effective" (USFWS 2011d).

A strategic step toward making the ESA less complex, less contentious, and more effective is to create scalable incentive structures for conservation actions that benefit at-risk species prior to the regulatory triggers of the ESA. Doing so will create value for those species before they become threatened or endangered under the ESA, and may help preclude listing altogether. Prior to becoming ESA-listed, a species can be perceived as a low priority and thus have little influence on development and other land use decision making. Yet once a species is listed, it may be protected at great expense (figure 1.1). The result can be large sums spent on lawsuits, significant drains on agency capacity, and perverse incentives. Concern over potential land use prohibitions under the ESA can create incentives for private landowners to manage their land in ways that may harm species (Lueck and Michael 2003). Yet the majority of declining species in the United States reside largely on private lands (Groves et al. 2000). Incentive programs are needed that shift management for declining species on private lands from a perceived liability to an asset. Doing so "upstream" of costly regulation is the focus of this volume.

THE NEED FOR UPSTREAM SPECIES CONSERVATION

Programs focused on upstream conservation actions could provide the needed incentives to achieve net conservation benefits for candidate and other at-risk species. Such programs, which we refer to as pre-listing conservation (PLC), would provide at least five broad benefits. First, it would incentivize early conservation actions, which generally reduce the cost and difficulty of species recovery. Second, it would incentivize proactive habitat management, which is particularly important for the

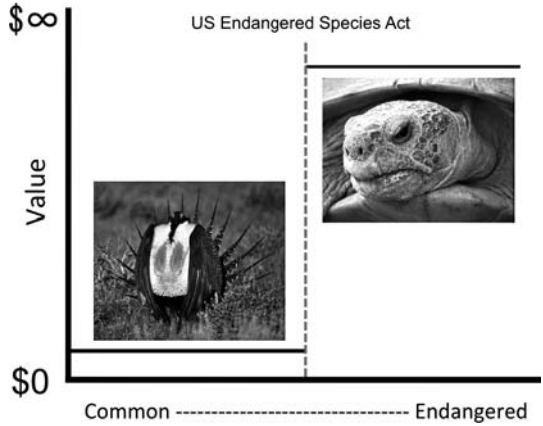

FIGURE 1.1. A simplified framework on how species are valued in the United States. Species have little influence on development and land use decision making until they become listed under the Endangered Species Act. Once listed, a species must be protected even, if it comes at great expense to individuals and society. This often results in conflict and perverse incentives. Increasing the value of species prior to becoming listed and creating incentives to preclude species from being listed would improve the value "landscape" of species conservation. See chapters 3 and 15 for perspectives on a candidate species, the Greater Sage-Grouse (*Centrocercus urophasianus*), and an ESA-listed species, the desert tortoise (*Gopherus agassizii*). © J. Stafford–USFWS and S. Dobrott.

majority of at-risk species that require active management to maintain viable populations (i.e., conservation-reliant species) (Scott et al. 2010). Third, it would facilitate more outcome-based programs compared to current ESA programs, since project developers could explicitly offset impacts *tomorrow* by funding PLC activities *today*. PLC outcomes could be evaluated and verified prior to impacts occurring. Fourth, successful PLC programs could reduce and possibly prevent the need to list some species. And fifth, PLC programs could mobilize new conservation funding and provide much-needed financial incentives for conservation on private lands.

Unlike many species conservation programs "downstream" of the ESA, PLC programs could provide value to all stakeholders involved. For those stakeholders that are having species impacts related to certain activities, participation in a PLC program provides a means of

managing the risk of future regulation if a species becomes listed under the ESA. This form of insurance could provide regulatory predictability, saving time and resources if listing occurs. This case is applicable to many individuals and collectives across the US landscape today: the Department of Defense and its need to maintain military readiness, companies installing solar and wind energy infrastructure on public and private lands, oil and gas companies operating on public lands, and private and public agencies upgrading our nation's infrastructure. For those in the position to create additional benefits for at-risk species, PLC programs could provide a form of additional revenue in exchange for environmental stewardship. For private landowners, conservation nongovernmental organizations (NGOs), or for-profit enterprises, PLC programs could mobilize new funding for species conservation. And finally, for government agencies whose mandate it is to protect species and their habitats, PLC programs would provide an overarching framework to engage stakeholders and incentivize proactive management prior to species becoming officially protected under the ESA. If properly designed and executed, PLC programs could be a win-win for the species and all stakeholders.

While the ESA already provides a few tools that promote conservation action before listing, they often lack the financial support and regulatory predictability needed to sufficiently incentivize such voluntary actions. Candidate Conservation Agreements do not contain regulatory assurances or offer participants any guarantees about ESA obligations if species listing occurs. Habitat Conservation Plans do not legally require participants to recover species or achieve a net benefit standard, and they have not been implemented for nonlisted species alone (USFWS and NMFS 1996). Candidate Conservation Agreements with Assurances (CCAAs), the tool most relevant to PLC programs, encourage nonfederal landowners to conserve candidate species in exchange for a permit that authorizes certain adverse impacts to the species if it is listed (Li and Male this volume). By issuing a permit, the USFWS is in effect recognizing the benefits of voluntary conservation measures initiated before listing and allowing those benefits to offset certain post-listing adverse impacts. The use of CCAAs has been limited, however, with a total of twenty-five finalized since 1999. A number of factors have contributed to low CCAA participation, including a lengthy approval process and a lack of financial incentives (Bean 2005; Womack 2008). Further, the USFWS may require detailed information about future impacts in order to adequately evaluate the effects on the species within a CCAA.

Many individuals and institutions, however, cannot provide this information because of uncertainty regarding future actions. Thus new tools are needed that provide strong incentives and regulatory certainty for conservation actions taken for at-risk species before they become protected under the ESA.

In March 2012, the USFWS issued an Advance Notice of Proposed Rulemaking stating that it intends to "propose a rule to encourage landowners and other potentially regulated interests to fund or carry out voluntary conservation actions beneficial to candidate and other at-risk species by providing a new type of assurance that, in the event the species is listed, the benefits of appropriate voluntary conservation actions will be recognized as offsetting the adverse effects of activities carried out by that landowner or others after listing" (USFWS 2012). Public input across sectors has been positive to this approach. The purpose of this volume is to provide information and guidance in the process of designing, piloting, and scaling PLC programs. We hope this book provides value to the diverse set of people that are working toward second-generation approaches and solutions to species conservation. While the focus of the volume is species conservation in the United States, many of the chapters are applicable to species conservation outside of the United States.

ORGANIZATIONAL STRUCTURE

This volume strives to be pragmatic and solutions oriented. It builds on previous volumes that have examined incentives and endangered species conservation (Shogren 2005; Scott et al. 2006; Adler 2011). It does not embrace extremes: nowhere will you find calls to abolish the ESA, nor will you find the naive perspective that the ESA has no problems and needs no reform. Rather, we offer a diversity of perspectives on a fresh approach to species conservation. We have striven to provide insights on the tools needed to design successful PLC programs, tools from a variety of disciplines, including law, policy, biology, sociology, technology, and finance.

Proactive Strategies for Protecting Species takes a market perspective, for three important reasons (figure 1.2). First, the majority of stakeholders who would be involved in PLC programs operate in markets: the buying and selling of products or services. Thus it is a preferred and familiar mode of making transactions. Second, conservation incentive agreements that include direct payments are becoming increasingly com-

FIGURE 1.2. A pre-listing conservation (PLC) marketplace, where project developers proactively manage their environmental risk for at-risk species by purchasing credits generated through conservation measures by private landowners. In exchange for financing a net conservation benefit for an at-risk species, the project developer receives predictability on regulatory requirements if and when the species is ESA listed. The additional conservation dollars generated from the PLC marketplace serve as financial incentives for environmental stewardship on private lands. The gopher tortoise (*Gopherus polyphemus*), Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*), and Greater Sage-Grouse (*Centrocercus urophasianus*) are three examples where a PLC marketplace could potentially provide net conservation benefits for at-risk species upstream of regulation. The Lesser Prairie-Chicken, however, was listed as threatened under the ESA in April 2014 (USFWS 2014b; see Male and Donlan this volume). © J. Womack and S. A. Cuomo–USAF, S. Fairbairn–USFWS, L. Lamsa, USFWS–Southeast.

mon due to a suite of potential advantages, including their voluntary nature and goal of efficiently compensating individuals for providing a public good (Jack et al. 2008; Milne and Niestan 2009). Programs that involve some value transfer mechanism (e.g., direct payments, technical assistance, or regulatory predictability) require some type of market structure. Third, placing PLC in a market perspective forces stakeholders to think about three programmatic aspects that are necessary for success at scale: supply, transactional infrastructure, and demand. One must understand the perspectives and incentives of the target stakeholders that

are asked to supply benefits for at-risk species. Demand must be present for upstream conservation benefits for at-risk species to be produced, and the infrastructure must be present to quantify and verify those benefits. While some aspects of this volume focus on what many readers likely envision when they hear the word *market,* some sections do not. A market can take on a variety of different structures—an important point that should be kept in mind throughout this volume.

Proactive Strategies for Protecting Species is divided into three parts. This first part provides policy background and important perspectives on species conservation from different stakeholders. Part 2 provides insights on designing PLC programs. Part 3 presents three case studies and a forward-looking conclusion.

Part 1 begins with Becca Madsen's primer on species conservation under the ESA, setting the stage for designing and implementing PLC programs. Madsen explains how the ESA is triggered, what protections it affords, and the mitigation hierarchy that determines when PLC actions might be applicable. The remainder of part 1 is devoted to essays on sector-specific perspectives and the potential value of pre-listing conservation. With over a decade of on-the-ground experience, Myles Traphagen describes desert tortoise (*Gopherus agassizii*) conservation in the Mojave Desert under the ESA. Despite the massive resources being invested in desert tortoise conservation, the business as usual situation can be summarized like this: great for jobs, not so great for the desert tortoise. Traphagen provides unique insight into the complexities and daunting challenges of endangered species recovery. The next two chapters focus on the potential demand for PLC programs and markets: the renewable energy sector and the military. Renewable energy (e.g., solar and wind) companies are investing billions in the United States, in some locations where at-risk species are present; and the Department of Defense is striving to balance base consolidation and military readiness with environmental sustainability, including species conservation. Sean Kiernan of SunEdison and Ryan Orndoff of the US Marine Corps provide perspectives on the challenges they face with regard to endangered species protection and the potential value of PLC approaches. The final two chapters in this part offer perspectives from potential suppliers of PLC markets: private forest landowners and ranchers. Terry Fankhauser of the Colorado Cattlemen's Association discusses the potential role of ranchers in providing species benefits and the approaches needed to realize those benefits. Rhett Johnson and Mary Snieckus discuss the importance of their perspectives on aspects

of PLC programs before design is undertaken of initiatives to incentivize species conservation on private lands. All these perspectives are important, especially since much evidence suggests that successful program design relies heavily on empathy: designing programs that take into account the perspectives of its stakeholders (Brown 2009).

Part 2 focuses on program design, discussing the legal, biological, sociological, financial, and technological aspects of PLC programs. In chapter 8, Ya-Wei Li and Timothy Male of Defenders of Wildlife provide the legal and policy foundation for PLC programs. Importantly, they demonstrate how the USFWS can use existing authority under the ESA to approve PLC projects and how agreements and conferences could be structured during the approval process. They provide a clear policy road map for establishing pilot projects. In chapter 9, Bobby Cochran and Nicole Maness of the Willamette Partnership offer a primer on biodiversity measurement systems. They discuss the common components and requisites that are involved in designing the tools needed to quantify biodiversity benefits within incentive and market-based conservation programs. In chapter 10, building on human-centered design approaches (Brown 2008), Michael Sorice and Troy Abel of Virginia Tech advocate a landowner-centered approach to designing incentive programs. They make a convincing argument that PLC programs in which program administrators directly involve private landowners in the design process will better recognize the social and ecological complexity of recovering at-risk species and result in greater participation. In chapter 11, Josh Donlan and colleagues examine potential market structures and finance for PLC programs. Using the gopher tortoise (*Gopherus polyphemus*) as an example, the authors provide a financial analysis of PLC credits that suggests that the approach can be more cost-effective than mitigation downstream of the ESA. In the last chapters in this part, Joanna Silver (Markit) and Michael Van Pattern (Mission Markets) discuss the role of technology in providing efficient and transparent transactional infrastructure in environmental markets. Silver discusses the important role of registries in markets, as well as alternative transaction platforms such as auctions and introductory platforms. Van Patten provides a complementary perspective by discussing how the use of transaction platforms and exchange technology can help increase visibility and access for businesses wishing to engage in actions to reduce their net environmental impact. Van Patten makes the argument that without mechanisms like exchanges and centralized marketplaces, most environmental markets will remain opaque and underutilized by major stakeholders.

Part 3 presents three case studies in the context of PLC programs that capture both the barriers these initiatives have encountered and the successes they have achieved thus far. Daniel Auerbach and Todd BenDor discuss how proactive conservation approaches and mitigation are being applied in freshwater ecosystems. They draw on the challenges and successes of several freshwater case studies to provide recommendations for maximizing PLC's full potential in aquatic ecosystems. Shauna Ginger (USFWS) and colleagues (Defenders of Wildlife) explore the challenges and opportunities surrounding the Greater Sage-Grouse (*Centrocercus urophasianus*) and PLC approaches. As energy development continues to expand in the western United States, market and mitigation approaches are likely to play a larger role in conservation strategies for sagebrush ecosystems. Integrating PLC approaches with a landscape-scale conservation strategy that functions across states with different regulations and policies will be both challenging and critical. Ginger and colleagues provide a preliminary road map for doing so. Todd Gartner (World Resources Institute) and colleagues provide a detailed PLC case study on the gopher tortoise. The authors discuss the lesson learned from their efforts to design and implement the first market-based PLC program: a candidate conservation banking pilot program focused on the gopher tortoise in the southeastern United States. Last, Timothy Male and Josh Donlan look forward to the immediate and future opportunities for PLC programs in the United States and abroad.

PROACTIVE STRATEGIES FOR PROTECTING SPECIES

With no major revisions to the ESA in over twenty-five years, the law is in desperate need of reform (Male 2014a). Science-based tools should be used to guide listing decisions; instead, private, citizen-driven lawsuits are currently playing that role. Similarly, politics are heavily influencing how funding is allocated to species listed under the ESA: a few species, like salmon and steelhead trout, receive the overwhelming majority of dollars while hundreds of species receive little to no money for recovery efforts. Other countries, like New Zealand and Australia, are taking a more apolitical and transparent approach that focuses on saving as many species per dollar invested as possible (Joseph et al. 2009; Male 2014b). Clear, science-based criteria are needed to consistently define the terms *threatened, endangered,* and *recovered* (Harris et al. 2011). More effort needs to be devoted to accelerating recovery as

opposed to preventing declines; a "net benefit" standard should be adopted when appropriate (Male 2014a; see Li and Male this volume).

PLC programs can contribute to these needed reforms. They can provide a science-based framework for species conservation action prior to lawsuits. They can create new revenue streams that are species-specific and nonfungible with respect to special interests (e.g., PLC dollars for the Greater Sage-Grouse could not be spent on the gopher tortoise). PLC's outcome-based framework would encourage science-based, consistent definitions of ESA terminology, mentioned above, and conservation actions could be assessed for impact (e.g., "net conservation benefit") before a transaction is fully executed (e.g., delivery of payment or regulatory predictability). PLC can facilitate and contribute to all of these ESA improvements, and it would do so upstream of regulatory triggers.

Incentivizing conservation of at-risk species is quickly becoming a priority in the United States and elsewhere. Doing so on private lands is particularly important since the majority of the habitat of at-risk species is found there. Properly designed and implemented, PLC programs can deliver net conservation benefits and align stakeholder interests. We hope that this volume provides a solid foundation and road map for implementing PLC programs for the many at-risk species that could benefit from upstream conservation approaches. PLC programs would at minimum provide uplift for candidate and at-risk species not yet listed. At best they would preclude the need for listing altogether. They could also help shift the current conservation models to more proactive frameworks that provide flexibility to developers while rewarding private landowners for conservation actions. Species protection needs more funding and stronger incentives for environmental stewardship on private lands. PLC programs can deliver both. The time for proactive strategies for protecting species is now.