



# Pre-listing conservation of candidate species under the endangered species act: An evaluation of prevalence, accessibility, and market-based conservation efforts

Todd K. BenDor<sup>a,\*</sup>, Kristen A. Vitro<sup>a</sup>, J. Adam Riggsbee<sup>b</sup>

<sup>a</sup> Department of City and Regional Planning, University of North Carolina at Chapel Hill, New East Building, Campus Box #3140, Chapel Hill, NC 27599-3140, United States

<sup>b</sup> RiverBank Ecosystems, 1310 S. 1st St., Austin, TX 79755, United States

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## ABSTRACT

In 2011, a legal settlement required the U.S. Fish and Wildlife Service (USFWS) to develop a series of work plans to assess a backlog of candidate species for protection under the U.S. Endangered Species Act. Using the resulting USFWS Fiscal Year 2013–2018 work plan, which included 261 candidate species, we identified and analyzed pre-listing candidate conservation plans (PLCP) to determine their characteristics and evaluate the use of market-based mechanisms. Among the 34 PLCPs identified, we found that species-based conservation plans were more common than habitat-based plans, and market-based conservation approaches were infrequently implemented. Inconsistencies in plan documentation were present throughout the USFWS's online portal, and not all documentation was publicly accessible. Lastly, we found that many states had implemented their own endangered species programs or initiated conservation plans through a state agency. Our work informs the recently-adopted USFWS pre-listing conservation policy and highlights needed improvements in tracking large numbers of at-risk species as they become the subject of regulations. Increased transparency and consistency in conservation plan databases, coupled with increased accessibility, will improve future at-risk species planning.

## 1. Introduction

The United States Fish and Wildlife Service (FWS), in consultation with the National Marine Fisheries Service (NMFS), is charged with enforcing the U.S. Endangered Species Act (ESA), which provides legal protections to threatened and endangered species (16 U.S.C. § 1531 *et seq.*). Following a series of lawsuits in which the FWS was found to have failed to meet the stipulated time frames for evaluation of candidate petitions and listing decisions (see US District Court for DC Misc. Action No. 10-377 (EGS), MDL Docket No. 2165; hereafter “DCDC Action 10-377”) the agency entered into a legal settlement that required the timely evaluation of 251 candidate species that were listed as ‘warranted but precluded’ in the 2010 Candidate Notice of Review (75 FR 69222-69294).

Although species yet to be listed as ‘threatened’ or ‘endangered’ are not afforded legal protections under the ESA (USFWS, 2013), candidates for listing are included in the agency's TAILS database (Defenders of Wildlife, 2016). This database includes assessments (‘biological opinions’) of candidate species, which are used during inter-agency consultations where species are likely to be affected by federal projects

(i.e. ESA Section 7 “conference opinions”; see USFWS, 2016). Voluntary conservation agreements and plans for these candidate species (“pre-listing” conservation plans; PLCPs) have emerged as attractive tools for improving conservation outcomes. PLCPs consist of conservation measures that are either species-based (i.e. defined by the species being protected) or habitat-based (i.e. defined by the habitat type, which may include multiple species; 16 USC § 1536, 1539).

Recent trans-disciplinary research into prelisting conservation planning (see Donlan, 2015), coupled with highly publicized plans for the greater sage-grouse and lesser prairie chicken (WAFWA, 2015; USFWS, 2015e; 80 FR 59857), have created a strong positive image of the practice (although little empirical work has explored the effectiveness of PLCPs). In light of this, the proliferation of PLCPs could be especially rapid given 1) the court ordered mandate for the USFWS to increase the rate of listing determinations, as well as 2) the potential for widely touted benefits to landowners for engaging in such plans to avoid an endangered listing for species on their land (Ginger et al., 2015).

In this paper, we analyze the frequency and characteristics of PLCPs for those species for which the USFWS has committed to making a listing determination by 2018. Our goals in this evaluation are to first

\* Corresponding author.

E-mail address: [bendor@unc.edu](mailto:bendor@unc.edu) (T.K. BenDor).

determine the status of the evaluations of these species and the overall prevalence of voluntary PLCPs for candidate species. Second, we seek to evaluate the type of plans created for candidate species. Third, we aim to understand the extent to which market mechanisms have been proposed and implemented in species protection plans. Our third goal is motivated by increasing rhetoric around market mechanisms for habitat protection (Madsen et al., 2011), as well as growing prevalence of habitat offset markets for listed species (USACE, 2015; USFWS, 2015b). Although little evidence has determined whether market-based approaches result in improved conservation outcomes, we hypothesize that market-based conservation mechanisms (e.g. conservation banks, habitat exchanges) may be favored over non-market mechanisms (e.g. habitat management plans), and thus should be well-represented in approved candidate conservation plans.

This evaluation has important implications for USFWS's (2017a) recent "Policy Regarding Voluntary Prelisting Conservation Actions," which although recently rescinded (USDOJ, 2017), points to an important trajectory for future policies aiming to incentivize land-owners who harbor candidate species to create voluntary PLCPs. The conservation measures implemented by these plans may help a candidate species to recover, thus reducing the need to list the species entirely, or reduce its listing status to "threatened" rather than "endangered". It is therefore imperative to understand how frequently these plans are implemented, as well as their characteristics. Within a global context, this analysis provides insight into potential issues and solutions to the extinction crisis that our global society currently faces (Barnosky et al., 2011). Understanding trends in PLCPs in the U.S. can help inform similar policies in other nations that seek to implement endangered species protection, and highlights key policy areas for consideration in international endangered species legislation.

## 2. Background

### 2.1. ESA species listing process

Charged with enforcing the U.S. Endangered Species Act of 1973 (as amended), the FWS's primary goal under the statute is to "protect and recover imperiled species and the ecosystems upon which they depend" (16 U.S.C. § 1531(b); USFWS, 2013). In 2010, the conservation advocacy group WildEarth Guardians sued the USFWS (*WildEarth Guardians v. Salazar* [2010]) because the agency had neglected its duties by frequently delaying reviews of petitions to protect at-risk species (see DCDC Action 10-377). While the ESA establishes a clear time frame in which specific actions are to take place, frequent and lengthy delays have led to an extensive backlog of such species identified in the annual Candidate Notice of Review. Some species have remained candidates for over a decade without receiving federal conservation protections (see DCDC Action 10-377).

Pursuant to the ESA, at-risk species are evaluated for listing as either "threatened" or "endangered", thus affording them protections under federal legislation, with endangered species receiving more stringent protections (USFWS, 2013). The classification of a species as "endangered" indicates that it is in danger of extinction throughout all or a significant portion of its range (16 USC § 1532 (6)), while a classification of "threatened" indicates that a species is at risk of becoming endangered throughout all or a significant part of its range (16 USC § 1532 (20)). In addition to listing an entire species or sub-species, the USFWS may also list a distinct population segment (DPS; 16 USC § 1532 (16)), a portion of a taxonomic species within a geographic (not taxonomic) limit, which is treated as its own conservation unit for the purposes of the ESA. The determination of a DPS is based on three key factors, including the discreteness of the population segment compared to the remainder of the species, the population's significance to the species (e.g. genetic diversity), and the population's conservation status in relation to listing standards (USFWS and NMFS, 1996; 61 FR 4722-4725).

### 2.2. Pre-listing conservation planning

State agencies, municipalities, and private individuals and organizations may develop voluntary conservation plans to protect and recover at-risk species. These PLCPs are not legally required by the USFWS or ESA; however, while such plans are an option that land-owners and other stakeholders may choose to implement in order to recover species and their habitat, they are used during ESA inter-agency consultations (ESA Section 7; 16 USC § 1536). The hope is that adoption of these voluntary conservation plans may reduce the likelihood of the candidate species being listed (Donlan, 2015), or may result in a species being listed as "threatened" as opposed to "endangered", thereby reducing the potential land use restrictions that could be imposed by the USFWS (see 16 USC § 1533(d) for exemption mechanisms). Although some have argued that the voluntary candidate conservation plans have appeared to increase certain candidate species populations (e.g. the greater sage grouse [*Centrocercus urophasianus*]; WAFWA, 2015; USFWS, 2015e; 80 FR 59857), there remains significant disagreement over the extent to which these plans have promoted desired conservation outcomes, as well as the timescale and data necessary to make such a determination (Campbell et al., 2015; BenDor and Woodruff, 2014).

Using a typology approach, PLCPs can be separated into two main categories: species-based plans and habitat-based plans. For the species-based plans, the primary focus is on a specific taxonomic group. Parties can enter into voluntary candidate conservation agreements (CCAs) or candidate conservation agreements with assurances (CCAAs; see FR 64 32726; pursuant to 16 USC § 1539). While similar in their structure, CCAAs go a step further by guaranteeing that the signatory parties will not be required to implement additional conservation strategies on their land if the candidate species is officially listed in the future. Habitat-based conservation plans are geographically based as determined by the needs of the given species, delineating a specific bioregion or geographic extent. These types of plans may take the form of a voluntary Habitat Conservation Plan (HCP) for the candidate species, or a Multi-Species Habitat Conservation Plan, where the candidate resides in a habitat that is designated for protection of an already listed species (pursuant to 16 USC § 1539). It is important to note that within the habitat-based framework, all species within the boundaries of the designated area may benefit from conservation efforts and management strategies, regardless of their listing or candidacy status.

### 2.3. Market-based species mitigation

In 2011, a federal judge approved a settlement that would require the USFWS to evaluate 251 candidate species for listing by 2016 (see DCDC Action 10-377). As part of this settlement, the USFWS was required to create a series of work plans with listing goals for candidate species.

This large-scale listing evaluation of species under the ESA represents an opportunity to understand broad-scale issues surrounding the current implementation of the ESA, as well as the current state of market-based conservation mechanism use in candidate species protection. Market-based conservation instruments were originally developed as a way to assign monetary value to conservation efforts (Meirfield, 1996). Substantial literature now centers on the endangered species conservation potential of biodiversity markets, whereby development or infrastructure impacts to habitats are interpreted as species "takes" (per the ESA, take is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct 16 U.S.C. § 1532 (19)"), which require offsets (compensatory mitigation) through habitat preservation and/or restoration in another location (McKenney and Kiesecker, 2010; Madsen et al., 2011).

Fee-based mitigation measures allow impactors to purchase habitat offset "credits" as part of conservation plans for listed species (USGAO, 2001). These purchases can occur through pre-listing conservation

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