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Species Conservation Incentives

by C. Josh Donlan,* Todd Gartner,** Timothy Male*** and Ya-Wei Li****

While the U.S. Endangered Species Act (ESA) has been a success, it is not without challenges.[1,2] The ESA serves as a backstop that triggers regulation to prevent species extinctions; however, it has been less effective at recovering species and preventing them from becoming listed altogether.[3,4] Without incentives for species management and environmental stewardship upstream of regulation, the ESA is often characterised as a reactive framework that sometimes leads to perverse incentives, such as pre-emptive destruction of habitat to avoid ESA regulations, and frequent legal battles.[5,6] Given the multi-dimensional challenges with species recovery, programmes focused on conserving species before they require ESA-listing have the potential to provide a suite of conservation and economic benefits, including aligning the interests of project developers, private landowners, conservation advocates and the U.S. Fish & Wildlife Service (USFWS).

In September 2011, the USFWS announced a six-year plan that will review and address the ESA status of nearly 900 at-risk and imperilled species, including over 250 candidate species. "Candidate species" are ones that meet the criteria for ESA listing, but have not yet been listed because of funding constraints. Thus, candidate species are not subject to ESA legal protections. While the new plan will expedite listing decisions, it was not intended to provide new tools to protect species before they may be listed. To help address this gap, the USFWS published an Advance Notice of Proposed Rulemaking in March 2012 to solicit public input on methods 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".[7]

We refer to this proposed concept as pre-listing conservation (PLC). PLC can complement and improve the performance of existing ESA programmes by encouraging early actions that achieve net conservation benefits for at-risk and candidate species. We briefly discuss the opportunities and challenges of creating a framework for PLC. First, we describe the potential benefits of PLC. Second, we suggest how PLC can be integrated into existing ESA policy. Lastly, we discuss the need for stronger incentives in order to mainstream PLC activities, and make recommendations on how to streamline and scale PLC in order to maximise participation and conservation benefits.

Pre-listing Conservation Benefits

A USFWS programme focused on PLC could provide at least five benefits to species conservation. First, it would incentivise early conservation actions, which generally reduce the cost and difficulty of species recovery. Second, it would incentivise proactive habitat management, which is critical for conservation-reliant species.[8] Third, it would be more outcome-based compared to current ESA programmes, since project developers could offset impacts "tomorrow" by funding PLC activities "today". Thus, PLC mitigation outcomes could be evaluated prior to impacts occurring. Fourth, successful pre-listing conservation could reduce and possibly prevent the need to list some species. Lastly, a PLC programme could mobilise new resources and provide much-needed financial incentives for conservation on private lands. One example is by offering project developers the opportunity to fund conservation measures carried out by private landowners. Those measures could then offset future adverse impacts if the species becomes listed.[9]

While the ESA already provides tools that promote conservation before listing, they often lack the financial support and regulatory predictability needed to sufficiently incentivise voluntary conservation. Thus, Candidate Conservation Agreements do not come with regulatory assurances nor offer participants any guarantees about their ESA obligations if species listing occurs; and Habitat Conservation Plans do not legally require participants to recover species or achieve a "net benefit" standard, and have not been implemented for non-listed species alone.[10] Candidate Conservation Agreements with Assurances (CCAAs), the tool most relevant to a PLC programme, encourage non-federal landowners to conserve candidate species in exchange for an ESA enhancement of survival permit that authorises certain adverse impacts to the species if it is listed (also known as "incidental take"). By issuing a permit, the USFWS is in effect recognising the benefits of voluntary conservation measures initiated before listing, and allowing those benefits to offset certain post-listing adverse impacts. As we describe below, we view CCAAs as one component of a PLC framework. The use of CCAAs has been limited, however, with a total of 25 finalised since

* Advanced Conservation Strategies, Midway, Utah, USA; and Department of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY, USA.
** World Resources Institute, Washington DC, USA.
*** Defenders of Wildlife, Washington DC, USA.
**** Defenders of Wildlife, Washington DC, USA.

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1999. A number of factors have contributed to low CCAA participation, including a lengthy approval process and a lack of financial incentives.[11,12] Further, when issuing an enhancement of survival permit under a CCAA, the USFWS may require detailed information about future impacts in order to adequately evaluate the effects on the species. Many potential participants, however, cannot provide this information due to uncertainty around future actions. Thus, the USFWS needs a tool to credit pre-listing conservation actions, even if it does not know exactly how those credits will be used in the future.

Pre-listing Conservation Policy

All PLC projects would be initiated before a species is listed under the ESA. The species conservation benefits would count toward satisfying future ESA requirements if the species becomes listed. All PLC projects would follow a similar process (see Box 1), but any individual project could take a variety of forms:

- A landowner (*e.g.*, rancher or mitigation banker) interested in generating credits from conservation actions on his property could ask the USFWS to assess the potential for a PLC project on his property.
- A federal agency wishes to engage in early conservation action to partially or fully offset potential future impacts on a species in exchange for regulatory predictability if the species becomes listed.
- A project developer (federal or non-federal) could finance private landowners to undertake conservation measures on their land, with the goal of generating enough credits to offset future impacts anticipated by the developer.

There are three existing tools under the ESA that could facilitate PLC activities: conservation banking guidance, section 7 conferencing, and CCAA policy (see Figure 1). The appropriate tool will generally depend on (1) whether participants are federal or non-federal entities and (2) whether the participants can provide enough information about the future activities they seek to be offset by PLC measures, so that the USFWS can sufficiently evaluate the impacts of those activities at the time a PLC agreement is drafted. For each tool, we briefly discuss how the benefits of PLC actions could be recognised (*i.e.*, crediting) and allowed to offset future adverse impacts (*i.e.*, debiting) for PLC projects.

Category 1 – Conservation Banking Projects

Species conservation banking, the creation and trading of "credits" that represent biodiversity values on private land, has been in place for more than a decade.[13] PLC projects based on conservation banks will be most appropriate in situations when there is uncertainty around the future activities and adverse impacts that will be offset by PLC actions. If the USFWS cannot evaluate those impacts, they cannot issue a draft or final incidental-take authorisation at the time a PLC agreement is finalised (see Box 1 and Figure 1). The USFWS can, however, offer participants two important guarantees: that their PLC actions will be credited if those actions meet pre-specified conditions, and those credits can be used in a manner described in a PLC agreement. Thus, the USFWS would provide additional regulatory predictability to PLC participants, while still retaining some control in deciding which specific future impacts may be offset by credits. For

The Pre-listing Conservation (PLC) Process[a]

1. Create PLC agreement.
2. Complete section 7(a)(4) conference or section 10(a)(1)(A) enhancement of survival permit.
3. Participants begin performing PLC activities.
4. If species is ESA-listed, finalize any draft incidental take authorizations.
5. Continue implementing PLC actions to achieve specified conservation goals outlined in PLC agreement.

The PLC agreement would adopt a net conservation benefit standard, defined as the long-term benefits resulting from a project exceeding the adverse impacts resulting from the activities connected to the project. In determining whether the net benefit standard is met, the USFWS should evaluate benefits and harms using the same biological metrics, and ensure that metrics directly or indirectly provide information on the species' status, as opposed to only species' habitat.

Conference: a process of early interagency cooperation involving discussions between a federal agency and the USFWS or NMFS pursuant to section 7(a)(4) of the ESA regarding the likely impact of an action on proposed species or critical habitat. Conferences are (1) required for proposed federal actions likely to jeopardise proposed species or adversely modify proposed critical habitat; (2) designed to help federal agencies identify and resolve potential conflicts between an action and species conservation early in a project's planning; and (3) designed to develop recommendations to minimize or avoid adverse effects to proposed species or critical habitat.

Enhancement of Survival Permit: A type of permit issued by USFWS or NMFS under the authority of section 10(a)(1)(A) of the ESA. These permits are issued as part of Safe Harbor Agreements or CCAAs. These agreements encourage landowners to take actions to benefit species while also providing assurances that they will not be subject to additional regulatory restrictions as a result of their conservation actions.

Box 1

[a] National Marine Fisheries Service

Sources: USFWS and National Marine Fisheries Service. 1998 *Endangered Species Consultation Book*; USFWS, Permits for native species under the Endangered Species Act.

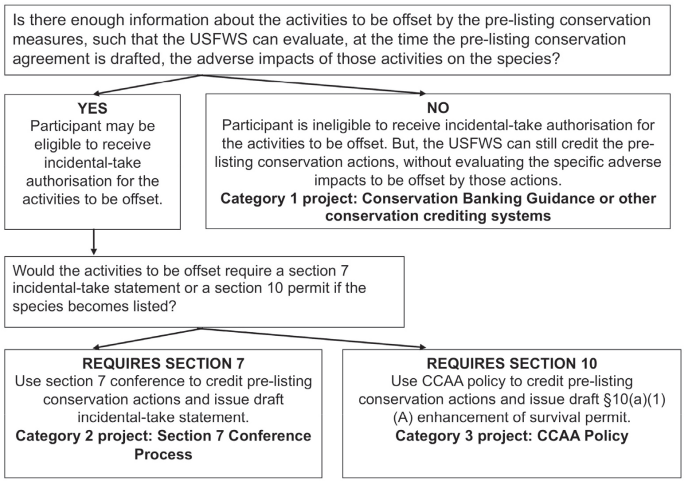

Figure 1: Decision framework for pre-listing conservation (PLC) projects. The existing ESA policy tool used to support a PLC project will depend generally on a) whether the details are known about the expected activities that will cause future adverse impacts to the covered species and b) whether or not a federal agency is involved in those activities.

example, the USFWS could issue credits for each individual of an at-risk species produced in a bank that survives to a pre-specified age (*e.g.*, sexual maturity), and those credits could be eligible to offset any future incidental take of individuals that occurs within an area defined in the PLC agreement. Assuming demand was present, participants could then begin accumulating a "bank" of credits, without having to know exactly how future incidental take might occur within the area.

Conservation banks could take two forms: permanent and temporary, with the distinction being the crediting system and the duration of the underlying conservation measures. Habitat within permanent banks must generally be maintained and protected in perpetuity (*e.g.*, conservation easement), whereas temporary conservation measures would not be subject to a perpetuity requirement (*e.g.*, 10-year renewable contract). Banks protected in perpetuity are important to the long-term recovery of species and can offset permanent impacts.[14] Many landowners, however, are wary of enrolling in programmes that include conditions in perpetuity.[15] The ability to receive credits for conservation measures implemented on a temporary or renewable basis could help increase PLC participation among landowners and, thus, result in more conservation uplift for at-risk species. Existing policies for both permanent and temporary conservation banks already exist for listed species under the ESA, and could be modified for PLC programmes.[16,17]

Category 2 – ESA Conference Process

In some cases, project developers will know the details of anticipated adverse impacts, which can then be included in a PLC agreement. Category 2 projects would involve impacts caused by a federal agency's activities. If the affected candidate species becomes listed, those activities may immediately be regulated under the ESA. For the agency to continue the activity post-listing, it would need to obtain incidental-take authorisation through "consultation" with the USFWS. In order to receive the authorisation, the agency may first be called on to modify activities and avoid or minimise certain impacts to the species.

Instead of waiting until after listing to determine the ESA restrictions that apply to adverse activities, a federal agency could obtain regulatory predictability far earlier by engaging in PLC activities. The agency would describe activities that are expected to result in incidental take of the species post-listing, while the USFWS would determine what conservation measures, if any, would offset take to such an extent that the measures would produce a net conservation benefit for the species. If this net benefit standard is met, the USFWS and the agency would then draft a PLC agreement. USFWS approval of the agreement is a discretionary natural resource decision that affects a candidate species. As such, their internal policies require it to complete an ESA "conference" on the approval. The conference could result in a "conference opinion" and a draft incidental-take authorisation.

In such a conference opinion, the USFWS would explain how PLC actions would satisfy certain ESA requirements if the species should ultimately be listed. If listing occurs, the USFWS could use the conference opinion to expedite the approval of the incidental-take authorisation needed for the development project. Before a final authorisation is issued, we believe the USFWS should evaluate whether the PLC actions have resulted, or are likely to result, in a net conservation benefit to the species. If it appears at the time of listing that a net benefit is unlikely to result because of unforeseen or changed circumstances, the agency should be required to take actions to meet the net benefit standard. This should be clearly articulated in the PLC agreement, so that participants are not given false expectations about their potential post-listing obligations.

Category 3 – CCAAs

Category 3 projects are similar to Category 2 projects, except that they cover future activities resulting from non-federal activities, rather than federal activities. The USFWS would assess both the beneficial PLC actions and the proposed adverse impacts, and issue a final enhancement of survival permit that covers those impacts. This is how CCAAs are currently approved; we therefore believe current CCAA policy is adequate to address Category 3 projects. Existing policy contains enough flexibility for the USFWS to require avoidance, minimisation and mitigation measures that could achieve a net conservation benefit for many candidate species. Further, the policy could be applied in a manner that allows the USFWS to explicitly recognise the benefits of PLC actions, including through the issuance of credits, and to describe how those benefits can offset impacts to the species that occur after listing.

Pre-listing Conservation Incentives

Strong incentives will be needed in order to mainstream PLC activities sufficiently that they can produce substantial net conservation benefits for candidate and at-risk species before listing. While a PLC programme makes sense from a species-conservation-and-recovery perspective, it must

also make sense to participants who are weighing the costs and benefits of opting into a voluntary programme. To create demand for PLC activities, federal and non-federal project developers must realise benefits from immediately undertaking those activities, as compared with how they would fare if they were to wait until ESA restrictions apply. Likewise, landowners will need stronger incentives than currently exist if PLC activities are going to become commonplace on private lands. Such private incentives are particularly important, in light of the fact that, for the majority of imperilled species in the US, critical habitats are located on private lands.[18] We believe the incentives needed to successfully mainstream PLC activities fall into three categories: regulatory predictability, streamlined programmatic processes, and financial incentives.[19,20]

Regulatory Predictability

Changes in land use across the nation are creating new challenges as development, security, energy policy, climate change and species management interact in novel ways. Federal and non-federal entities are increasingly viewing environmental risk as something focused on at-risk species. The Department of Defense faces challenges as it strives to balance base consolidation and military readiness with environmental sustainability. As army bases in the southeast expand and receive returning troops, for example, they will need solutions to manage the risks to the Gopher Tortoise (*Gopherus polyphemus*), a candidate species that is impacted by military training operations.[21] In another example, wind energy companies have invested billions of dollars in Texas.[22] – investments that may be influenced by the potential listing of the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), given that wind turbines and related infrastructure have negative impacts on its mating sites. Similarly, the expansion of national oil and gas development in the western US overlaps extensively with and threatens the Greater Sage-grouse (*Centrocercus urophasianus*).[23] Creating incentives to mitigate environmental risk around these and other candidate species would benefit project developers, the USFWS and the species themselves. A PLC programme focused on advance mitigation would help reduce both the environmental risk for project developers and the uncertainty surrounding net impacts, by shifting mitigation upstream toward outcomes produced in advance of the adverse impacts that are expected to occur downstream (after listing/regulation). Yet PLC activities are by definition voluntary, and thus the net upstream benefits to a project developer's actions must be greater than those that arise downstream. Regulatory predictability from the USFWS is at the centre of the perceived benefits of project developers engaging in PLC activities. The more developers can gain predictability and certainty about how PLC activities will be credited toward future regulatory requirements, the more likely that they will seek to participate in PLC programmes at the scale needed for conservation uplift of at-risk species.

Streamlined Programmatic Processes

Time-consuming and burdensome programmatic processes are currently acting as a disincentive to participation in voluntary conservation programmes (*e.g.*, CCAAs).[24,25] Streamlining the necessary processes to design and implement PLC programmes is critical to maximising participation and creating demand for upstream species conservation. In general, keeping PLC agreements as short and simple as possible, and eliminating successive layers of review are two ways to increase enrolment in voluntary species conservation.[26] In addition, the following specific recommendations should help streamline PLC agreements:

- *Document simplification:* The longer and more complex an agreement, the more intimidating it will be to landowners and the less likely it is that they will sign it. Existing voluntary agreements (*i.e.*, CCAAs and Safe Harbor Agreements) include lengthy information on a species' biology, status and threats. This information is often unnecessary and may even be counterproductive since a landowner's signature is a statement agreeing to this detailed information, which is often not within their knowledge. What is essential in a PLC agreement are clear statements on what the parties (*e.g.*, the landowner and the USFWS) agree to do over the period of the agreement. PLC agreements should be as short and simple as possible. Necessary background information can be moved to appendices to the agreement.
- *Clarification:* Current standards for voluntary agreements are ambiguous and difficult to apply (*i.e.*, for CCAA approval, the standard requires the applicant to "preclude or remove any need to list"). A net-conservation-benefit standard for all PLC activities, including CCAAs, would provide a more objective, measurable and tangible standard for all parties (see Box 1).
- *Legal Interpretation:* The need to get legal review of proposed voluntary conservation agreements (*e.g.*, CCAAs) can create substantial delays and act as a disincentive to potential participants. To expedite such review, the USFWS could involve the applicant's legal advisors in the drafting process at a much earlier stage. By allowing identification of potential legal issues in the initial stages, field office staff can then negotiate agreements with participants more efficiently. Early legal review could reduce delays, as well as potential "surprise" changes to PLC agreements that can further discourage participant participation.

Financial Incentives

The ESA has largely failed to incentivise voluntary conservation action on private lands to the extent needed, and ironically can even act as a perverse incentive. Concern over potential land-use prohibitions due to the ESA can create incentives for citizens to manage lands in ways that may harm species.[27,28] By linking private landowners with federal and non-federal project developers through Category 1 projects, a PLC programme could help convert the developer's perception of the various elements of the project's management of at-risk species from liabilities into assets. The creation of a PLC marketplace enables project developers to pro-actively manage their environmental risk around at-risk species by purchasing credits generated

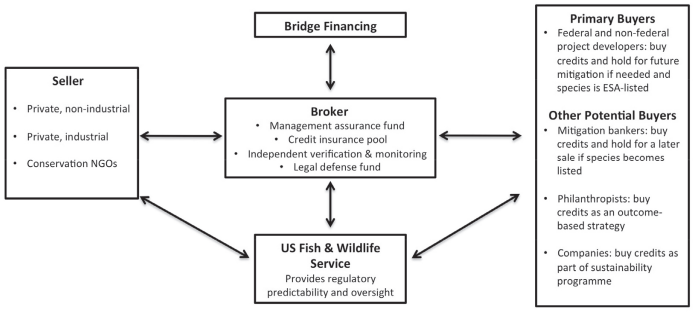

Figure 2: Pre-listing conservation marketplace structure. Private landowners generate conservation credits for at-risk species and sell them to buyers. The primary buyers are federal and non-federal project developers who buy credits to manage environmental risk around at-risk species. Credits, approved by the USFWS, provide some regulatory predictability if and when the at-risk species is ESA-listed. Other secondary buyers are also possible. A broker provides liquidity in the marketplace, manages risk, and reduces entry barriers for sellers.

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.. Leveraging market principles, PLC programmes focused on the crediting and debiting of habitat for at-risk species could provide strong incentives for participation: a means of proactively managing environmental risk for project developers, and financial payments for private landowners to manage their land for the benefit of candidate species. Careful attention to issues of supply, demand and transactional infrastructure will be critical to ensure net conservation benefits. Further, a broker model might be advantageous to facilitate transactions between suppliers (*i.e.*, private landowners), buyers (*i.e.*, project developers) and the USFWS (see Figure 3). A broker model could provide the necessary upfront financing and risk management that would allow PLC activities to scale over multiple species and geographies.[29]

Conclusions

Incentivising conservation of at-risk species upstream of regulation should be a priority. Doing so on private lands is particularly important since the majority of habitat of at-risk species is found there. Properly designed and implemented, PLC programmes can deliver net conservation benefits and align stakeholder interests. We encourage the USFWS to begin developing appropriate PLC pilot projects. We believe our proposed framework based on existing rules, policies and guidance provides a foundation for moving forward with pilot projects. Pre-listing species programmes would at minimum provide uplift for candidate and at-risk species not yet listed. At best, they would preclude the need to list altogether. Species protection needs more funding and stronger incentives for environmental stewardship on private lands. PLC programmes can deliver both.

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