RESPONSE

Comment on *Trading Species: A New Direction for Habitat Trading Programs*

by Michael J. Bean

In the air and water pollution control arenas, the trading of pollution allowances has been embraced as a flexible and cost-effective way of achieving prescribed pollution reduction goals. Its advantages over prescribed technology requirements or across-the-board reduction requirements are manifest. The marketability of allowances creates an incentive for excess reductions by those who can achieve them cheaply, as well as a less costly means of achieving compliance with mandated goals by those who would otherwise face formidable compliance costs. The Clean Air Act's cap-and-trade system that has proven so successful in reducing emissions of acid rain precursors is now the presumptive best approach for reducing the threat of climate destabilization.

With the success of trading approaches in tackling air and water pollution challenges, it is natural to consider whether a similar approach might be useful in tackling the problem of endangered species. In his article, *Trading Species: A New Direction for Habitat Trading Programs*, Jonathan Remy Nash considers what, if anything, learned from the experiences with pollution allowance trading might be usefully applied to create an effective trading program for endangered species.[1] His answer, not surprisingly, is essentially "not much."

Trading programs assume the existence of a fungible or nearly fungible thing being traded. For climate purposes, a ton of carbon emitted into the atmosphere in Peoria, Illinois, is equivalent to a ton of carbon emitted into the atmosphere anywhere else in the world. The location of the emission source (or sink) does not matter. For acid rain precursors and other air pollutants, however, the location of the emission may well matter. And for water pollutants, the location of the emission source is very likely to matter. As Nash explains, there are potential ways to adjust trading values for these site-specific considerations, though at the cost of increased administrative complexity, reduced market size, or both. These challenges, however, pale in comparison to the challenge of achieving fungibility of trading units for any market involving endangered species.

For example, the value of an acre of habitat for a particular endangered species will likely depend upon a myriad of variables. Is it isolated from other similar habitat, or is it embedded in a larger contiguous block of habitat? What are the land uses (and protection status) of the lands immediately around it? What is its shape? Is it likely to be relatively self-sustaining without active management, or will active management be essential to maintaining its value? Is it actually occupied by the species of concern, or is it not? If not, how likely is it that the species will occupy it in the future? Is it of exceptional quality or simply marginal? If marginal, can its quality be enhanced, and if so, at what cost? The answers to all of these questions (and many others) necessarily affect the value of any given acre for any particular endangered species. A trading program that is based upon acres of habitat as the unit of exchange, and that does not take these factors into account, will simply result in acres of low economic value being conserved and acres of high economic value being lost, without any necessary benefit to the species.

Even without the above challenges, there is a further reason that robust markets for endangered species are unlikely to develop. Most endangered species have very limited geographic distribution. In the history of the Endangered Species Act (ESA), there has been only one endangered species, the recently delisted bald eagle, that had an essentially national distribution. Virtually no endangered species occur in more than a dozen states, and roughly one-half occur only in a single state. A significant number occur in only one or a few localities within a single state. The smaller the distribution of a species, the smaller the universe of potential buyers and sellers of its habitat (or credits or other measures of impact). Thus, even if fungible trading units could be developed for an endangered species, the markets for those trading units would almost always be extremely thin.

It should be noted that the fungibility dilemma exists whether or not there is a trading market. Every time the U.S. Fish and Wildlife Service (FWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries approves a project detrimentally affecting an endangered species or its habitat, conditioned upon an offsetting or compensatory measure, it is making a comparison between the magnitude of the detrimental impact and the magnitude of the offsetting impact. If that comparison is based on some consistently applied principles, those same principles could be applied to achieve equivalencies of traded actions in a market setting. Of course, the possibility also exists that current mitigation decisions are not based on consistently applied principles, but on purely ad hoc determinations for each new project. The frequent failure of the FWS and NOAA Fisheries to clearly articulate the basis upon which their mitigation decisions are made leaves this matter unresolved.

Nash explores one effort to develop generalized principles that could underlie an endangered species' habitat trading effort. It is worth noting that this effort, called the "habitat transaction method," was proposed in an article published in 1994.[2] At first, it had little impact. A year later, on the other hand, the FWS approved its first—and much simpler—endangered species conservation bank. When a bank was established for a species, credits could be used to miti-

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1. Jonathan Remy Nash, *Trading Species: A New Direction for Habitat Trading Programs*, 38 ELR (Envtl. L. & Pol'y Ann. Rev.) 10539 (Aug. 2008) (a longer version of this article was originally published at 32 Colum. J. Envtl. L. 1 (2007)).

2. Todd G. Olson et al., *The Habitat Transaction Method: A Proposal for Creating Tradable Credits in Endangered Species Habitat*, *in* Building Economic Incentives Into the Endangered Species Act: A Special Report From Defenders of Wildlife 27 (Hank Fischer & Wendy E. Hudson eds., 1994).

gate development impacts elsewhere upon that species.[3] In the ensuing decade, the FWS has approved a few dozen other conservation banks, virtually all of them along the same model. In 2003, it published national policy guidance on endangered species conservation banking.[4] That policy guidance, like the banks the FWS had previously approved, assumes that detrimental impacts to an endangered or threatened species will be offset by compensatory measures for that same species at an approved bank site, and that both can be measured by acres affected. Publication of policy guidance, though it has clarified somewhat the rules and procedures applicable to conservation banks, has not catalyzed significant new investment in them. The inherently limited nature of the markets for credits from such banks is the most likely explanation.

To overcome this and other problems, Nash proposes a system of "constrained permit trading" in which an initial allocation of development permits is made that leaves all affected species (not just endangered species) at or above "minimum viable" levels. Those initially allocated development permits could then be traded, provided the trades continue to leave all species at or above viable levels. Unclear from Professor Nash's description is the scale at which species viability is assessed. A species could be rendered unviable in a particular local community by a development project there, while still remaining fully viable at the county level, state level, or national level. Maintaining the viability of all species at the local level may be a worthy environmental goal, but it would represent a dramatic expansion of regulatory control beyond what the ESA currently imposes. If the national scale is the appropriate scale at which to assess viability, Nash's proposed approach may differ very little from current practice, inasmuch as the only species likely to be rendered unviable by local development projects are those that are currently protected by the ESA.

There is a further problem with Nash's proposal, which is that it appears to sanction developments that make all endangered species worse off, without any being made better off, so long as those made worse off are not made so much worse off that they cross a threshold of unacceptability. The goal of the ESA, however, is to make already endangered species better off, not simply to limit how much worse off they can be made. Is there a trading system that could better advance this goal? Taking a cue from Nash's title, could "trading species" better advance this goal?

To address that question, let us imagine a hypothetical world in which there are only two endangered species. Let us also imagine that in this world we have so refined the tool of population viability analysis that we are reasonably confident that we know the likelihood of survival of these species under present circumstances and under a variety of possible new circumstances. Species A has a 60% probability of surviving for another century. Species B has only a 30% probability of surviving for the same period. The habitat upon which species A depends is found mostly on land with high commercial value; species B, on the other hand, is found mostly on land of low commercial value.

A landowner proposes to develop land occupied by species A. If he does so, the development will reduce that species' probability of survival to 50%. To mitigate this impact, a variety of rather expensive measures can be undertaken, but these will only boost the survival probability up to 55% (a legally acceptable outcome at present, if the mitigation is the maximum practicable and if the reduced survival probability does not jeopardize the species' continued existence). If the government approves this arrangement, the final result will be that in our world of only two endangered species, the probabilities that each will survive will have declined from 60 and 30% to 55 and 30%.

Because of the disparity in land values where the two species occur, an even smaller mitigation investment, if directed to species B, could double its probability of survival from 30 to 60%. If the government permitted the landowner to mitigate in this manner, the final result would be that the probabilities that the two species will survive will change from 60 and 30% to 50 and 60%. Viewed from the perspective of an overall effort to avert the loss of species diversity, this is clearly a better result than if (as at present) mitigation is required to be directed only at the species affected by the development. Indeed, it is even a better result than simply prohibiting the development, which would leave the probabilities of survival frozen at 60 and 30%. From the landowner's point of view, it is a better result as well, since it reduces the cost of mitigation.

This hypothetical suggests the potential desirability of a policy under which a developer whose activities will damage the habitat of a listed species would be allowed to compensate for those damages by helping another listed species such that its probability of survival is increased by more than the original species was harmed. The species that loses habitat becomes a "donor species"; the one whose habitat is protected or restored as compensation for the harm done to the donor species becomes a "recipient species." The common currency for these transactions could be the *percentage change* in survival probabilities for the affected species, as determined by population viability analyses.

What objections might be made to this idea? The immediate objection, of course, is that we lack the ability to conduct such population viability analyses. This is undeniably true. However, it is equally true that the government today routinely approves development actions that detrimentally affect listed species, and imposes mitigation obligations, in the face of this same lack of ability to rigorously assess the impact of either on the affected species.

A second objection is that allowing negative impacts to one species to be offset by compensatory measures for another species puts the former species at increased risk of extinction. Unfortunately, that happens today even without any compensating benefits to another listed species. Federal agencies are routinely permitted to carry out detrimental actions so long as they do not cross the threshold of causing "jeopardy" to a listed species, and private interests are required to mitigate for the impacts of their actions on listed species only "to the maximum extent practicable." Nothing suggested here contemplates removing the "jeopardy" floor.

3. *See* Michael J. Bean & Lynn E. Dwyer, *Mitigation Banking as an Endangered Species Conservation Tool*, 30 ELR 10537 (July 2000) (discussing the emergence and current state of endangered species mitigation banks).

4. Guidance for the Establishment, Use, and Operation of Conservation Banks, 68 Fed. Reg. 24753 (May 8, 2003); *see also* Memorandum from Steven Williams, Director, U.S. Fish and Wildlife Serv. (FWS), to FWS Regional Directors, Guidance for the Establishment, Use, and Operation of Conservation Banks 1-7 (May 2, 2003), *available at* http://www.fws.gov/endangered/pdfs/MemosLetters/conservation-banking.pdf.

A third objection is that the species protected by the ESA actually include a diverse mix of species, subspecies, "distinct population segments" (such as individual salmon runs), and perhaps someday soon, further categories. Trading across these varied units would seem to put lesser taxa (such as distinct population segments) on an equal footing with full species. It would also put highly endemic species on an equal footing with more wide-ranging "keystone" or "umbrella" species. And finally, it would put species from taxonomically prolific groupings, e.g., tiger beetles, on an equal footing with species from taxonomically limited groupings, e.g., canids. All of these are true, and deserving of attention. It should be noted, however, that the law currently makes no distinctions among these various categories and extends to all of them the same legal protections (with the single exception that the law treats plants less protectively than it treats animals).

One can readily imagine still other objections, but there is no need to examine them further here. The very idea of trading species is admittedly a fantasy, given the limits on our actual knowledge of the status of most endangered species and of the likely impacts of various development activities on them. It also cannot be squared with long-standing practice under the ESA, which requires that impacts to any listed species be mitigated by offsetting actions to benefit that same species. Still, two considerations ought to permit one to indulge this fantasy for awhile. The first is that the very same knowledge limitations have not prevented the government from approving major development projects in return for mitigation commitments of dubious efficacy. The second is that the goal of recovering endangered species might actually be accomplished more quickly and for more species by allowing the sort of flexibility explored here.