

Conflict, or perceived conflict, between profits and conservation drives much of the controversy over implementation of the Endangered Species Act. Landowners and resource users resist species listing and protection because it comes at their expense. For years we've been talking about whether and to what extent to incorporate compensation or other economic incentives for conservation into the ESA.

The same intuition drives the quest to incorporate ecosystem services into public and private decisionmaking. To the extent that conservation provides public benefits, it is thought, private actors who contribute to conservation should be able to capture at least some of those benefits. But it has been difficult to come up with mechanisms that would actually provide a financial return to those who succeed at conservation, and conservation advocates have typically resisted blanket compensation measures because they fear budget constraints.

Now a group at Cornell [argues in \*Frontiers in Ecology and the Environment\*](#) that a futures market could be an effective conservation tool, providing funding for conservation efforts and aligning the interests of landowners and conservation advocates. Their paper is a creative piece of thinking, but not a good model for future conservation efforts.

They propose that the government or an NGO should sell derivatives tied to set population levels (or presumably other verifiable thresholds, such as habitat extent), for species or other units of conservation concern that are not yet legally protected. If numbers fall below the threshold, the issuer could use the principal for conservation purposes. If they rise above the threshold, funds would be returned to investors with a preset return. The authors assert that by issuing such derivatives the government or NGO could "transfer[] the risk of listing a species to the market, thereby stabilizing its costs for listing and protecting species over a set time period" while "provid[ing] largescale investors with the financial incentive to undertake proactive, private conservation efforts."

Will it work? I'm skeptical. The current economic crisis has driven home the reality that derivatives don't eliminate risk, and indeed that by hiding risk they can make the consequences worse when bad outcomes do occur. The Cornell group is sensitive to the prospects of market manipulation. They call for a ban on short selling of biodiversity futures, and third party independent assessments of risks at the outset (for pricing purposes) and performance over the lifetime of the instrument (for purposes of determining whether investors are entitled to returns). Two key concerns, however, are essentially unaddressed in their paper.

The first is the question of who would buy these derivatives and why. The authors don't

seem to even recognize this as a concern. They assume, apparently, that if you issue it, buyers will come. Maybe so, but it's not clear to me why they would.

Derivatives can be useful to hedge economic risk, but I don't see them making the key difference here. There are some economic risks in the prospects of species decline, for landowners who might face future regulatory restrictions or for resource users who might not have future access to water, timber, or other government resources. But those facing risk already have some ways to address it, and have chosen not to do so. Landowners can already manage their risk from species decline by choosing to invest in conservation; resource users are often in the position to do the same by agitating for regulatory or management conservation measures. The fact that they don't shows that they think the economic benefits of eliminating risks to species are not sufficient to offset the costs of conservation. If that's true, the only ways to get them to buy species futures would be either to heavily subsidize those futures or to increase the regulatory bite of species listings. The first would remove the revenue-generating benefit the paper claims, while the second, in addition to being politically unlikely, would increase temptations to "shoot, shovel, and shut up" instead of paying for expensive risk hedges. If there is a market for species conservation futures, therefore, it will only be because government or an NGO is paying most of the costs of conservation. We surely don't need a complex futures market to make that happen — it's already the status quo.

To make matters worse, many of the most pressing conservation concerns today are not readily addressable by private, local investment. Think climate change. In some cases it may be possible to invest in management measures that will make a system more robust to climate change, but in other cases good faith management efforts may well be swamped by the impacts of off-site greenhouse gas emissions. Where the latter is the case, the costs of conserving the system or its individual species converge with the total costs of addressing the global climate problem. It's hard to see any rational investor buying in at that price.

Second, the Cornell group blithely asserts that impartial monitoring will be feasible. That is not necessarily the case. It is often very difficult to quantitatively assess population levels. It can be relatively easy to monitor certain types of habitat changes, which is why the Forest Service frequently uses a "proxy-on-proxy" strategy for assessing species-level impacts of its logging projects. But tying those changes to population-level impacts on individual species often requires the deployment of models which are subject to a great deal of uncertainty. That's why the "proxy-on-proxy" approach has been so controversial. Both assessing extinction risks at the outset and evaluating the species' status down the line will be very difficult and subject to extraordinary degrees of uncertainty. If risks can't be estimated with some reasonable degree of accuracy and precision, it's hard to see how there can be a

functioning market in instruments intended to hedge those risks.