

# The Risks of Assisted Colonization

There is a growing debate over whether species should be translocated outside their historic ranges to deal with extinction risks as habitats shift due to climate change. This idea of taking preemptive action to avert predicted extinction risks has been given emphasis by the recent International Union for Conservation of Nature (IUCN) assessment of species susceptibility to climate-change impacts (Foden et al. 2008), prompting suggestions that “more aggressive measures, such as so-called ‘assisted migration’” be considered (Marris 2008).

Hoegh-Guldberg et al. (2008) provide a decision framework for identifying scenarios in which what they term “assisted colonization” (AC) is justified.

We see problems with the impact of these articles, despite their conservative approach. First, there are current international translocation guidelines (IUCN 1998) that provide a strong rationale against the early adoption of AC as a conservation tool. The Reintroduction Specialist Group (RSG) was created in 1988 to address the proliferation of ill-conceived translocations that had been taking place, including many releases of species outside historic ranges (Stanley Price & Soorae 2003). The RSG formulated the guidelines for translocation planning to ensure that conservation benefits accrue. “Benign introduction” (BI)—the translocation of species to suitable habitat outside their historic range as a conservation measure—was considered appropri-

ate only when there was no habitat left within the original species range (IUCN 1998). Although AC appears to fall within the definition of BI, the two differ in that AC aims proactively to establish species outside their historic range to preempt predicted climate-driven changes in habitat suitability.

Calls to take proactive conservation measures need to consider that there are currently huge uncertainties involved, not only in climate-change predictions and consequent species responses (Araújo et al. 2005; Hulme 2005; Sekercioglu et al. 2008) but also in our understanding of the habitat requirements of species (Stamps & Swaisgood 2007) and the effects of translocations on ecosystem function (Armstrong & Seddon 2008).

At a recent conference (First International Wildlife Reintroduction Conference, Lincoln Park Zoo, Chicago, Illinois, April 2008, <http://www.reintroduction.org/>), RSG members discussed climate-change implications for translocations, acknowledging the need for the integration of reintroduction biology and restoration ecology, and the updating of translocation guidelines to consider issues such as the mitigation of climate-driven habitat change and overcoming barriers to natural dispersal of species. Given current uncertainty, however, there is substantial risk that prematurely embracing the undeniably sexy AC concept will initiate a new era of ill-conceived species translocations.

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## Calling Indonesia's US\$13 Billion Bluff

In February of this year, Indonesia's Ministry of Agriculture approved a decree to allow the conversion of peatlands to oil-palm plantations (Butler 2009). This effectively allows ~2 million ha of peatlands (8%) and the biota that occupy this ecosystem to be destroyed (Sodhi et al. 2004). Why are the authorities reversing President Yudhoyono's decree in December 2007 to ban oil-palm development on peatlands? Why are they encouraging development on peatlands when tropical peat soils are traditionally regarded as suboptimal for oil-palm agriculture (Corley & Tinker 2003)? But perhaps the most perplexing question is, why now?

The timing of this decision might, in fact, offer some clues. Mechanisms to reduce emissions from deforestation and forest degradation (REDD) have been gaining momentum as a way to combat global warming, fund conservation, and deliver economic benefits to rural populations. Avoided deforestation is expected to be recognized as a legitimate emissions reduction activity by the United Nations Framework Convention on Climate Change (UNFCCC) during its Conference of Parties (CoP) in December this year. A key criterion for valuing carbon stocks for an REDD project is "additionality"—the net emissions savings calculated based on a baseline deforestation (and emissions) scenario. The method of establishing baseline deforestation rates is still under debate. But if the UNFCCC decides to adopt a business-as-usual approach of projecting potential future deforestation rates, any country seeking to maximize financial benefits from REDD would best do so by registering a high "current" deforestation rate, preferably before the upcoming CoP.

This is exactly what the latest Indonesian decree would achieve. The net present value (NPV) of net operating profits from UNFCCC-sanctioned REDD projects based in Indonesia has been estimated to be ~US\$1600–6600/ha (based on a 30-year project time frame; Butler et al. 2009). Had Indonesia not freed up

the 2 million ha of peatlands for development, the country would essentially be defaulting US\$3.2–13.2 billion worth of carbon derivatives from establishing REDD projects on these lands. Even if REDD does not become sanctioned by the UNFCCC, these peatlands would still potentially be worth US\$7.6–19.2 billion if converted to oil-palm plantations (based on NPVs of US\$3800–9600/ha; Butler et al. 2009). Given these circumstances, Indonesia is simply making a rational decision that best serves its financial interests. It will be interesting to see whether other carbon-rich nations follow Indonesia's lead.

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