# From Pleistocene to trophic rewilding: A wolf in sheep's clothing

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Nearly 10 y ago, we (1) critiqued the idea of Pleistocene rewilding (2), a misguided attempt to resurrect bygone ecosystems. Much has happened to the Earth's biodiversity over the decade since the term "Pleistocene rewilding" was coined, most of it bad. More than half a billion people have been added to the world's population, and ecosystems continue to be degraded at an alarming rate. A sixth mass extinction is underway, and poaching of megafauna has increased across sub-Saharan Africa. Unfortunately, one thing that has not happened is any serious attempt to scientifically study Pleistocene rewilding. Despite a number of publicized Pleistocene rewilding projects (Oostvaardersplassen in The Netherlands and Pleistocene Park in Siberia), we have yet to see any quantitative data concerning the impacts of megafauna reintroductions.

Svenning et al. (3) again revive the Pleistocene rewilding debate. No longer calling it Pleistocene rewilding, they repackage the sensational into something more palatable: "trophic rewilding." "Trophic" refers to a "trophic cascade"—when the removal of a top predator or herbivore has indirect and cascading effects on lower tropic levels. Over the past decade, there has been much scientific study of trophic cascades, including those created by the removal of megafauna. However, even these studies recognize that ecosystems are no longer pristine, especially those harboring large mammals. Today's reality is that wildlife and people must coexist. Setting aside large tracts to bring back communities of disrupted cascades is a luxury.

As the metaanalysis of Svenning et al. (3) shows, rewilding—especially when trophic cascades are reinstated—can alter ecosystem function, often for the better, even if the mechanism is incompletely understood. However, using proxy species when mechanisms are uncertain to recreate ancient ecosystems could have many unintended consequences (1). Simply repackaging Pleistocene rewilding as trophic rewilding does nothing to change this fact. Without good science, such large-scale reintroductions could be as untested as dumping iron into the sea, or placing particles in the sky to attenuate the effects of climate change. We cannot afford to co-opt good science (research on trophic cascades) to justify bad science (Pleistocene rewilding) at a time when species are in peril.

There is no doubt that today's ecosystems are different from those of 10,000 y ago. However, they are also quite different from the ecosystems of just 10 y ago, when rhinoceros and elephant poaching in Africa seemed under control. In another 10 y, there may be no rhinoceros left. Rather than continuing to promote the sensational by repackaging a failed conservation strategy in shiny new clothing, we should direct our efforts toward preserving the ecosystems and wildlife that remain. We should focus on ways to feed the millions of new mouths appearing each year without destroying more biodiversity (4). We should stop talking about trophic or Pleistocene rewilding, or its next rebadging. We were criticized (5) for drawing the analogy to *Jurasssic Park* (1). However, Svenning et al. (3) argue for "a framework for integrating synthetic biology and trophic rewilding science." It is time to be practical, not sensational. It is time to move on.


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3 Svenning J-C, et al. (2015) Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research. *Proc Natl Acad Sci USA*, 10.1073/pnas.1502556112.
4 Searchinger TD, et al. (2015) High carbon and biodiversity costs from converting Africa's wet savannahs to cropland. *Nat Clim Change* 5:481–486.
5 Donlan CJ (2007) Restoring America's big, wild animals. *Sci Am* 296(6):70–77.


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