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No inflation of threatened species

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In the global assessment recently produced by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), we reported that human-caused drivers have been reducing biodiversity and many of its contributions to people and that these downward trajectories can be reversed only by transformative change ⁽¹⁾. Among many other statistics reflecting the current state of nature, the assessment estimated that 1 million animal and plant species are threatened with extinction and that extinction rates are already at least tens to hundreds of times higher than the average over the past 10 million years ⁽¹⁾. In his Letter “Unhelpful inflation of threatened species” (26 July, p. 332), M. J. Costello critiques these estimates and argues that, rather than being helpful to conservation, they may even be counterproductive. We disagree: The estimates are not inflated, and we were right to report them.

As we acknowledged fully ⁽¹⁾, the current global number of animal and plant species is a key uncertainty when estimating how many are threatened. Costello implies a consensus that this number is at most 2.7 million, citing four of his recent papers as evidence. However, estimates have not converged over recent decades ⁽²⁾, and Costello’s low estimates have themselves been criticized; for example, they are based on analysis of the taxonomic history of unusually completely described groups ⁽³⁾, and they overlook how species descriptions have become increasingly complex over time ⁽⁴⁾. Faced with very divergent estimates from different researchers using well-reasoned approaches, we used a transparent and non-extreme recent estimate [8.1 million animal and plant species ⁽⁵⁾] but also spelled out how the number of threatened species depends on the estimate used and, given that insects may have a lower prevalence of extinction risk, how many are insects ⁽¹⁾. The estimate of 5.5 million insects that we used ⁽¹⁾ has since been supported by a focused review ⁽³⁾. Costello’s criticisms of the extinction rate comparisons in the Global Assessment are also wrong: Contrary to his suggestion, the comparisons were matched by taxonomic group and considered the effect of time scale ⁽¹⁾, whereas the cause of extinction is irrelevant to rate comparisons.

We agree with Costello that expanded knowledge of species status will be immensely helpful for conservation action; however, we disagree entirely with his suggestion that the Global Assessment should have focused on how many species have been documented as threatened (about 27,000) rather than estimating the global total (about 1 million), for fear of inducing “compassion fade.” Effective policy and action surely need estimates of the true state of nature, not numbers chosen for their political or social acceptability. The Global Assessment therefore took the view that it should estimate the true state of nature, acknowledging the uncertainties, rather than only report numbers of documented extinctions and threatened species (which, although important and more precisely known, conflate the state of nature and the state of knowledge). As Tukey ⁽⁶⁾ wrote, “Far better an approximate answer to the right question, which is often vague, than an exact answer to the wrong question, which can always be made precise.”

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