

# PUBLISHED VERSION

Linus Blomqvist, Barry W. Brook, Erle C. Ellis, Peter M. Kareiva, Ted Nordhaus, Michael Shellenberger  
**The ecological footprint remains a misleading metric of global sustainability**  
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## Formal Comment

# The Ecological Footprint Remains a Misleading Metric of Global Sustainability

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The Formal Comment by Rees and Wackernagel [1] raises our concern that this exchange will confuse readers. For this reason, we aim to emphasize a few key points that we believe cannot be disputed. First, the entire global ecological overshoot (footprint of consumption in excess of biocapacity) results from carbon dioxide emissions reframed as the hypothetical forest area needed to offset these emissions. Plantations of fast-growing trees would, by-the-numbers, eliminate the global overshoot. Second, the ecological footprint's (EF) assessments for cropland, grazing land, and built-up land are unable to capture degradation or unsustainable use of any kind. Finally, we conclude from the above and the points made in our original paper [2] that we would be better off discussing greenhouse gas emissions directly in terms of tons of CO<sub>2</sub>-equivalent (and thus focus on solutions to emissions), and developing a more ecological and ecosystem process framework to capture the impacts humans currently have on the planet's natural systems. The appropriate scale for these indicators will, in many cases, be local and regional. At this level, the EF is a measure of net exports or imports of biomass and carbon-absorptive capacity [3]. Any city, for example, would show a deficit, as it relies on food and materials from outside. That in itself, as Robert Costanza has

noted, “tells us little if anything about the sustainability of this input [from outside the region] over time” [4].

## Author Contributions

The author(s) have made the following declarations about their contributions: Wrote the paper: PK LB EE BB TN MS.

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Formal Comments are critiques of specific published articles.

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