

disturbance (CI_T ; Figure 1A), irrespective of the direction of the impact. Therefore, the bivariate scheme for resilience comparisons (Figure 1D) requires only the absolute values of I_{max} and CI . However, as pointed out by Y&R, it is useful both in a scientific and a management context to account for the fact that disturbances can lead to increases or reductions in ecosystem states. Furthermore, it is important to consider that an overshooting recovery response can reduce the net impact of a disturbance. For example, growth enhancement after grazing or extreme drought can lead to higher productivity and transiently higher post-disturbance biomass than in undisturbed grassland (Figure 1B, trajectory a) [8]. Because such overshoot responses can also influence the recovery debt (CI_{RT}) beyond the measure suggested by Moreno-Mateos *et al.* (CI_R) [9], resilience studies should always monitor recovery responses well beyond the initial recovery of a system to the baseline state.

Figure 1E demonstrates for four hypothetical response trajectories (shown in Figure 1B) how the directionality of disturbance impacts and of overshooting recovery responses can be accounted for in a bivariate framework. By relating the negative or positive I_{max} to the net CI , this scheme can provide useful information for scientific and management-related questions. However, this scheme does not attribute important components of resilience, such as recovery rate, recovery time, or overshoot responses. We therefore recommend joint application of the bivariate schemes shown in Figure 1D,E for consistent and informative resilience comparisons.

Partial Recovery and Alternative Stable States

In cases where a system does not fully recover to the baseline state, or displays a permanent overshoot, it has reached an alternative (stable) state [10] (Figure 1C)

and is therefore not resilient by definition. The proximity of the state of such a permanently displaced system to the undisturbed reference system can nevertheless be depicted in a bivariate scheme, and is best related to the I_{max} of a disturbance (Figure 1F). Such a bivariate analysis may for example be useful for inferring crucial impacts leading to tipping points, and could bridge between the complementary perspectives of ‘engineering’ and ‘ecological’ resilience [1].

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¹Institute of Ecology, University of Innsbruck, Sternwartestrasse 15, 6020 Innsbruck, Austria

*Correspondence: michael.bahn@uibk.ac.at (M. Bahn).

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Scientific Life

A Final Warning to Planet Earth

Guillaume Chapron,^{1,5,*}
Harold Levrel,^{2,5,*}
Yves Meinard,^{3,5,*} and
Franck Courchamp^{4,5,*}

In Ripple *et al.* [1], 15 364 scientists from 184 countries issue a ‘warning to humanity’ and present a radical agenda to protect planet Earth. We, the billions of people believing in human exceptionalism, categorically reject this agenda and issue in return a stark warning to planet Earth. No amount of facts showing that planet Earth is in a dire state will have us changing our mindset, thank you very much. We do not care about planet Earth. We care about our next devices and their latest cool features. We want more stuff.

The signatories of Ripple *et al.* [1] ignore the obvious facts that the era when poets could marvel at the diversity of flower or insect species is over, and that real-world wildlife has now become obsolete. We simply take our smartphones to overlay customized virtual creatures on our surrounding environment and dispose of them when new trends dictate. There is no longer a need to preserve filthy and dangerous wildlife that moreover lives in places where Amazon Prime does not deliver. More iPhones are sold in a few days [2] than there are tigers, elephants, and gorillas on the planet: this should alert the signatories to what really matters, were they not ideologically biased against human progress.

Those scientists argue that we are approaching many of the planetary limits. We refuse to accept any type of limits: growth must indefinitely prevail unrestricted. We officially summon

planet Earth to abandon its intransigent attitude and accept the inevitable: an extension of its biological and physical limits. Should planet Earth stick with its hardline ideological stance, it needs to be aware that mankind will never compromise and that we will seek a second planet. The universe is like our ambition: limitless.

The new economy of nature, whereby ecosystem services such as pollination are monetarily valued, should not be understood as another dogmatic way of protecting planet Earth. It is instead a call to producers and shareholders to conquer new markets by outcompeting nature with better services at a cheaper price for consumers. Ecosystems must fight for their survival like any other business. Protecting nature would moreover give it an undue competitive advantage against our industries. If our agricultural practices endanger the bees that pollinate crops, this does not imply we should change these practices. Instead we will let bees disappear and replace them by AI-powered microdrones – which create many jobs and do not sting.

The obvious ideological aim of Ripple *et al.* [1] is to inspire a generation of scientists to ask broader questions relevant to overconsumption and overpopulation, and how our institutions can meet the challenge of reducing human pressure on planet Earth. We find this unacceptable and call on the 15 364 signatories to join us on the side of winners against planet Earth, and hence to symbolically withdraw their signatures by not engaging in any of the research suggested in the warning to humanity. Fellow scientists, ask not what more you can do for planet Earth, ask what more planet Earth can do for you. And note how politicians on both the left and right are already united in this truly bipartisan issue that beautifully transcends the political divide: worshipping growth and denying that we depend on our environment.

We therefore strongly oppose the agenda accompanying the warning to humanity and will not tolerate any obstacle to our way of life – be it tree-huggers or the trees themselves. At the first Earth Summit in Rio de Janeiro in 1992, the 41st US President claimed ‘our way of life is not

up for negotiation’. Today, speaking in the name of billions of people, we proudly claim to all be US presidents. Planet Earth: consider yourself warned.

¹Grimsö Wildlife Research Station, Department of Ecology, Swedish University of Agricultural Sciences, 73091 Riddarhyttan, Sweden

²Centre International de Recherche sur l'Environnement et le Développement (CIRED), AgroParisTech, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), CNRS, École des Hautes Études en Sciences Sociales (EHESS), Ecole des Ponts ParisTech, Université de Paris-Saclay, Campus du Jardin Tropical, 45 bis avenue de la Belle Gabrielle, 94736 Nogent-sur-Marne, France

³Université Paris-Dauphine, Paris Sciences et Lettres (PSL) Research University, LAMSADE, CNRS Unité Mixte de Recherche 7243, 75775 Paris Cedex 16, France

⁴Ecologie, Systématique, et Evolution, Univ. Paris-Sud, CNRS, AgroParisTech, Université de Paris-Saclay, 91400 Orsay, France

⁵All authors contributed equally

*Correspondence:

Guillaume.Chapron@slu.se (G. Chapron),
harold.levrel@agroparistech.fr (H. Levrel),
yves.meinard@lamsade.dauphine.fr (Y. Meinard),
franck.courchamp@u-psud.fr (F. Courchamp).

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