

References to accompany Qualicum Institute Letter to Environmental Organizations

Economic growth as the key driver of climate change and biodiversity loss

- “Why economic growth is not compatible with environmental sustainability”, <https://theecologist.org/2018/feb/22/why-economic-growth-not-compatible-environmental-sustainability>
- “Economic growth-our common foe”, <https://www.countercurrents.org/cc-dawe030406.htm>
- <https://steadystate.org/we-asked-for-science-we-got-sustain-a-babble/>
- Also see [quotes and references](#) on 2nd page

GDP growth and the ecosphere’s capacity to regenerate resources and absorb waste

- <https://steadystate.org/using-gdp-to-estimate-the-limits-to-growth/>

Scientists warning:

- First <https://www.ucsusa.org/resources/1992-world-scientists-warning-humanity>
- Second: <https://academic.oup.com/bioscience/article/67/12/1026/4605229>

Biodiversity loss

- Climate-driven declines in arthropod abundance restructure a rainforest food-web <https://www.pnas.org/doi/10.1073/pnas.1722477115>
- <https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.4620#:~:text=The%20decline%20in%20insect%20biomass,areas%20over%20just%20nine%20years.>
- Decline in insect populations https://en.wikipedia.org/wiki/Decline_in_insect_populations#Krefeld
- Living planet report, 2022 https://wwfint.awsassets.panda.org/downloads/embargo_13_10_2022_lpr_2022_full_report_single_page_1.pdf
- Conservation strategies, are we only addressing the symptoms> <https://qualicuminstitute.ca/wp-content/uploads/2023/08/BC-Nature1.pdf>

How to Build a movement

- Beth Zemsky: Movement Building <https://www.youtube.com/watch?v=WxW22CYV-o>

Steady State Economy

- <https://steadystate.org/>
- “Towards a steady state economy”, https://is.muni.cz/el/fss/jaro2015/ENS242/um/55677449/3_Daly_2008_Towards_a_Steady_State_Economy.pdf

Registered charities can engage in public policy dialogue and development

- <https://www.canada.ca/en/revenue-agency/services/charities-giving/charities/policies-guidance/public-policy-dialogue-development-activities.html#toc4>

Quotes and references

“Because the decimating factor of economic growth eliminates welfare factors for virtually all imperiled species via the principle of competitive exclusion, economic growth may be classified as the limiting factor for wildlife conservation.”—**Czech, B. Economic Growth as the Limiting Factor for Wildlife Conservation. *Wildl. Soc. Bull.* 1973-2006 28, 4–15 (2000)**

https://mpira.ub.uni-muenchen.de/9038/1/Economic_Growth_as_the_Limiting_Factor_for_%20Wildlife_Conservation.pdf.

“Our findings strongly support the notion that abating human population growth is a necessary, if not sufficient, step in the epic attempt to conserve biodiversity on the global scale.”—**McKee, J. K., P. W. Sciulli, C. D. Foose, and T. A. Waite. 2004. Forecasting Biodiversity Threats Due to Human Population Growth. *Biological Conservation* 115(1): 161–164.**

<https://www.sciencedirect.com/science/article/abs/pii/S0006320703000995>.

“Globally, economic and population growth continue to be the most important drivers of increases in CO₂ emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply (high confidence)”—**IPCC - Intergovernmental Panel on Climate Change and O. Edenhofer Eds. 2014.**

***Climate change 2014: mitigation of climate change: Working Group III contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge University Press, New York, NY**

https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.

“The warnings aptly describe the problems, identify population, economic growth and affluence as drivers of unsustainable trends and acknowledge that humanity needs to reassess the role of growth-oriented economies and the pursuit of affluence.”—**Wiedmann, Thomas, Manfred Lenzen, Lorenz T. Keyßer, and Julia K. Steinberger. 2020. ‘Scientists’ Warning on Affluence’. *Nature Communications* 11 (1): 3107.**

<https://doi.org/10.1038/s41467-020-16941-y>.

“Economic and population growth are among the most important drivers of increases in CO₂ emissions from fossil fuel combustion; therefore, we need bold and drastic transformations regarding economic and population policies.”—**Ripple, William J, Christopher Wolf, Thomas M Newsome, Phoebe Barnard, and William R Moomaw. 2019. ‘World Scientists’ Warning of a Climate Emergency’. *BioScience*, November, biz088. <https://academic.oup.com/bioscience/article/70/1/8/5610806> .**

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At the heart of this assessment is a stark warning. Human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted [our emphasis]. ... We must learn to recognize the true value of nature—both in an economic sense and in the richness it provides to our lives in ways much more difficult to put numbers on. Above all, protection of these assets can no longer be seen as an optional extra, to be considered once more pressing concerns such as wealth creation or national security have been dealt with.—**Millennium Ecosystem Assessment, 2005. Living beyond our means; Statement from the Board. World Resources Institute, Washington, DC. <https://www.millenniumassessment.org/documents/document.429.aspx.pdf>.**

“The gravity of the situation requires fundamental changes to global capitalism, education, and equality, which include *inter alia* the abolition of perpetual economic growth, properly pricing externalities, a rapid exit from fossil-fuel use, strict regulation of markets and property acquisition, reigning in corporate lobbying, and the empowerment of women. These choices will necessarily entail difficult conversations about population growth and the necessity of dwindling but more equitable standards of living.”—**Bradshaw, Corey J. A., Paul R. Ehrlich, Andrew Beattie, Gerardo Ceballos, Eileen Crist, Joan Diamond, Rodolfo Dirzo, et al. 2021. ‘Underestimating the Challenges of Avoiding a Ghastly Future’. *Frontiers in Conservation Science* 1 (January): 615419. <https://doi.org/10.3389/fcosc.2020.615419>.**

“In our article, we emphasize the need to “reassess the role of an economy rooted in growth” and urge revising our economy to “reduce wealth inequality” and “take into account the real costs which consumption patterns impose on the environment.” Our article also underscores the importance of stabilizing and gradually reducing the global population, which itself would be a significant contributor to ending economic growth.”—**Ripple, William J, Christopher Wolf, Mauro Galetti, Thomas M Newsome, Tom L Green, Mohammed Alamgir, Eileen Crist, Mahmoud I Mahmoud, and William F Laurance. 2018. ‘The Role of Scientists’ Warning in Shifting Policy from Growth to Conservation Economy’. *BioScience* 68 (4): 239–40. <https://doi.org/10.1093/biosci/biy009>.**

“A linear model of global economic expansion yields the chilling prediction that human utilization of critical freshwater resources will approach one half of the Earth's total capacity by midcentury.” —**Albert, James S., Georgia Destouni, Scott M. Duke-Sylvester, Anne E. Magurran, Thierry Oberdorff, Roberto E. Reis, Kirk O. Winemiller, and William J. Ripple. 2021. ‘Scientists’ Warning to Humanity on the Freshwater Biodiversity Crisis’. *Ambio* 50 (1): 85–94. <https://link.springer.com/article/10.1007/s13280-020-01318-8>.**

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“Most stressors, such as increasing temperature, biological invasions, biodiversity loss, habitat fragmentation, over-exploitation, have been shown to simplify food webs by concentrating energy flow along fewer pathways, threatening long-term community persistence.”—**Heleno, Ruben H., William J. Ripple, and Anna Traveset. 2020. ‘Scientists’ Warning on Endangered Food Webs’. *Web Ecology* 20 (1): 1–10. <https://doi.org/10.5194/we-20-1-2020>.**

“In short, humanity needs to recognize that the fundamental changes have to happen at the level of the ultimate cause of environmental crisis—that is, a global economic system dependent on growth. To reach such a point, we, as scientists, need to call humanity’s attention to the dangers of continuing considering economic growth as a model for development.”—**Pacheco, Luis F, Mariana Altrichter, Harald Beck, Damayanti Buchori, and Erasmus H Owusu. 2018. ‘Economic Growth as a Major Cause of Environmental Crisis: Comment to Ripple et Al.’ *BioScience* 68 (4): 238–238. <https://doi.org/10.1093/biosci/biy006>.**

“Examining relevant studies on historical trends and model-based projections, we find that: (1) there is no empirical evidence that absolute decoupling from resource use can be achieved on a global scale against a background of continued economic growth, and (2) absolute decoupling from carbon emissions is highly unlikely to be achieved at a rate rapid enough to prevent global warming over 1.5°C or 2°C, even under optimistic policy conditions. We conclude that green growth is likely to be a misguided objective, and that policymakers need to look toward alternative strategies.”— **Hickel, Jason, and Giorgos Kallis. 2020. ‘Is Green Growth Possible?’ *New Political Economy* 25 (4): 469–86. <https://doi.org/10.1080/13563467.2019.1598964>.**

“Central to the United Nations’ post-2015 development agenda grounded in the Sustainable Development Goals is the notion of ‘decoupling’: the need to divorce economic growth from its ecological impact. ... in this article we therefore analyze decoupling as a ‘fantasy’ that functions to obfuscate fundamental tensions among the goals of poverty alleviation, environmental sustainability, and profitable enterprise that it is intended to reconcile. In this way, decoupling serves to sustain faith in the possibility of attaining sustainable development within the context of a neoliberal capitalist economy that necessitates continual growth to confront inherent contradictions.”— **Fletcher, Robert, and Crelis Rammelt. 2017. ‘Decoupling: A Key Fantasy of the Post-2015 Sustainable Development Agenda’. *Globalizations* 14 (3): 450–67. <https://doi.org/10.1080/14747731.2016.1263077>.**

“...determination of an "optimum" world population size involves social decisions about the life styles to be lived and the distribution of those life styles among individuals in the population. To us it seems reasonable to assume that, until cultures and technologies change radically, the optimum number of people to

References to accompany Qualicum Institute Letter to Environmental Organizations exist simultaneously lies in the vicinity of 1.5 to 2 billion people.”—**Daily, Gretchen C., Anne H. Ehrlich, and Paul R. Ehrlich. 1994. ‘Optimum Human Population Size’. *Population and Environment* 15 (6): 469–75. <https://doi.org/10.1007/BF02211719>.**

“According to our estimates, the optimum size that corresponds to a situation that would allow sustainable welfare at the level of the average European citizen of today is approximately 3.1 billion people.”—**Lianos, Theodore P., and Anastasia Pseiridis. 2016. ‘Sustainable Welfare and Optimum Population Size’. *Environment, Development and Sustainability* 18 (6): 1679–99. <https://doi.org/10.1007/s10668-015-9711-5>.**

“Relevant to human population growth, ... when women have control over their reproductive activities, they typically make choices that are appropriate to their social and environmental circumstances. Population numbers then become stabilized. It is also critical for all sex-related decisions that all world citizens have access to education at least through the secondary school level.”—**Lidicker, William Z. 2020. ‘A Scientist’s Warning to Humanity on Human Population Growth’. *Global Ecology and Conservation* 24 (December): e01232. <https://doi.org/10.1016/j.gecco.2020.e01232>.**

“We are embedded in Nature; we are not external to it. No amount of technological progress can make economic growth as conventionally measured an indefinite possibility. Ours is inevitably a finite economy, as is the biosphere of which we are part. ... ” “Growing human populations have significant implications for our demands on Nature, including for future patterns of global consumption.” “But if we are to avoid exceeding the limits of what Nature can provide on a sustainable basis while meeting the needs of the human population, we cannot rely on technology alone: consumption and production patterns will need to be fundamentally restructured.”—**Dasgupta, Partha. 2021. *The Economics of Biodiversity: The Dasgupta Review including Headline messages*.**

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf and https://assets.publishing.service.gov.uk/government/ploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf.

“In true Orwellian style, the political and economic dogma that has come to pervade all facets of society must not be questioned. For many years, green-growth oratory has quashed any voice with the audacity to suggest that the carbon budgets associated with 2°C cannot be reconciled with the mantra of economic growth.”—**Anderson, K. 2015. Talks in the city of light generate more heat. *Nature* 528:437. <https://www.nature.com/articles/528437a>.**

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“The exponential growth of human activities is raising concern that further pressure on the Earth System could destabilize critical biophysical systems and trigger abrupt or irreversible environmental changes that would be deleterious or even catastrophic for human wellbeing. This is a profound dilemma because the predominant paradigm of social and economic development remains largely oblivious to the risk of human-induced environmental disasters at continental to planetary scales [our emphasis]. ... The thresholds in key Earth System processes exist irrespective of peoples’ preferences, values, or compromises based on political and socioeconomic feasibility, such as expectations of technological breakthroughs and fluctuations in economic growth.”—**Rockström, J., et al. 2009. Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14:32. [online] URL: <http://www.ecologyandsociety.org/>.**

“The warnings aptly describe the problems, identify population, economic growth and affluence as drivers of unsustainable trends and acknowledge that humanity needs to reassess the role of growth-oriented economies and pursuit of affluence”—**Wiedmann, Thomas, Manfred Lenzen, Lorenz T. Keyber, and Julia K. Steinberger. 2020. ‘Scientists’ Warning on Affluence’. *Nature Communications* 11 (1): 3107. <https://www.nature.com/articles/s41467-020-16941-y> .**

"Globally, economic and population growth continue to be the most important drivers of increases in CO2 emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to that of the previous three decades, while the contribution of economic growth has risen sharply (*high confidence*)."—**Pachauri, R. K., Leo Mayer, and Intergovernmental Panel on Climate Change, eds. 2015. *Climate Change 2014: Synthesis Report*. Geneva, Switzerland: Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf.**

"economic growth is one of the two major causes of the environmental crisis, along with population growth, which is correctly addressed by Ripple and colleagues (2017). A transition to sustainability cannot be achieved if our economic system is not radically changed, simply because limitless economic growth is impossible within a limited planet. "—**Pacheco, Luis F, Mariana Altrichter, Harald Beck, Damayanti Buchori, and Erasmus H Owusu. 2018. ‘Economic Growth as a Major Cause of Environmental Crisis: Comment to Ripple et Al.’ *BioScience* 68 (4): 238–238. <https://doi.org/10.1093/biosci/biy006>.**

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“Excessive extraction of materials and overexploitation of ecosystems, driven by economic growth, must be quickly curtailed to maintain long-term sustainability of the biosphere.”—**Ripple, William J., Christopher Wolf, Thomas M. Newsome, Mauro Galetti, Mohammed Alamgir, Eileen Crist, Mahmoud I. Mahmoud, William F. Laurance, and 15,364 scientist signatories from 184 countries. 2017. ‘World Scientists’ Warning to Humanity: A Second Notice’.** *BioScience* 67 (12): 1026–28.
<https://academic.oup.com/bioscience/article/67/12/1026/4605229> .

“Economic growth is currently the principal cause of increased climate change, and climate change is a primary mechanism of biodiversity loss. Therefore, economic growth is a prime catalyst of biodiversity loss.”—**Rosales, Jon. 2008. ‘Economic Growth, Climate Change, Biodiversity Loss: Distributive Justice for the Global North and South’.** *Conservation Biology* 22 (6): 1409–17. <https://www.jstor.org/stable/20183552>.

Research suggests that the scale of human population and the current pace of its growth contribute substantially to the loss of biological diversity. Although technological change and unequal consumption inextricably mingle with demographic impacts on the environment, the needs of all human beings—especially for food—imply that projected population growth will undermine protection of the natural world. Numerous solutions have been proposed to boost food production while protecting biodiversity, but alone these proposals are unlikely to staunch biodiversity loss. An important approach to sustaining biodiversity and human well-being is through actions that can slow and eventually reverse population growth: investing in universal access to reproductive health services and contraceptive technologies, advancing women’s education, and achieving gender equality.—**Crist, Eileen, Camilo Mora, and Robert Engelman. 2017. ‘The Interaction of Human Population, Food Production, and Biodiversity Protection’.** *Science* 356 (6335): 260–64.
<https://www.science.org/doi/10.1126/science.aal2011>.

Economic growth is presented as the panacea that can solve any of the world's problems: poverty, inequality, sustainability, you name it. Left-wing and right-wing policies only differ on how to achieve it. However, there is an uncomfortable scientific truth that has to be faced: economic growth is environmentally unsustainable. Moreover, beyond a certain threshold already surpassed by EU countries, socially it isn't necessary. The central question then becomes: how can we manage an economy without growth?—**DeMaria, Federico. 2018. ‘Why Economic Growth Is Not Compatible with Environmental Sustainability’.** 22 February 2018. <https://theecologist.org/2018/feb/22/why-economic-growth-not-compatible-environmental-sustainability>.

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