**Reference list for BIOL 416 Terrestrial Ecosystems Winter 2022**

(This list will be updated (using yellow highlighting) through the course based on your suggestions and our additional reading)

**Required course textbook:**

Principles of Terrestrial Ecosystem Ecology. 2011. 2nd edition. Chapin, F.S. III, Matson, P.A. and Vitousek, P. Springer.

**Recommended journal papers:**

Barnosky et al, 2011. Has the Earth’s sixth mass extinction already arrived? *Nature* 471:51-57.

Bradshaw et al, 2014. Human population reduction is not a quick fix for environmental problems. *Proceedings of the National Academy of Sciences* 111(46):16610-16615.

Bradshaw et al, 2021. Underestimating the Challenges of Avoiding a Ghastly Future. *Frontiers in Conservation Science* 1:615419.  <https://doi.org/10.3389/fcosc.2020.615419>

Buckeridge, K.M., Creamer, C. and Whitaker, J. 2022. Deconstructing the microbial necromass continuum to inform soil carbon sequestration. *Functional Ecology* <https://doi.org/10.1111/1365-2435.14014>

Ceballos et al, 2017. Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *PNAS* 114 (30) E6089-E6096; <https://doi.org/10.1073/pnas.1704949114>

Ceballos et al, 2020. Vertebrates on the brink as indicators of biological annihilation and the sixth mass extinction. *PNAS*117 (24) 13596- 13602; <https://doi.org/10.1073/pnas.1922686117>

Costanza, R., R. dArge, et al. 1997. he value of the world's ecosystem services and natural capital. *Nature* 387(6630): 253-260.

Diaz, S. et al 2019. Pervasive human-driven decline of life on Earth points to the need for transformative change. *Science* 366(6471), eaax3100.

Grogan, P. 2013. Our Anthropocene Future - What can biology tell us? *Free Inquiry*. February/March issue. Vol. 32(2):16-19. Council for Secular Humanism. New York. This paper is available directly at: <https://www.queensu.ca/terrestrial-ecosystem-ecology/sites/webpublish.queensu.ca.teelwww/files/files/Publications%20and%20Outreach/FreeInquiry.pdf> .

Hickel, J. 2019. The contradiction of the sustainable development goals: Growth versus ecology on a finite planet. *Sustainable Development* 27:873–884.

Kates, R., et al. 2005. What is Sustainable Development? *Environment* 47(3): 8-21

Keestra et al, 2016. The significance of soils and soil science towards realization of the United Nations Sustainable Development Goals. *Soil* 2: 111–128. <https://soil.copernicus.org/articles/2/111/2016/soil-2-111-2016.pdf>

O'Geen, A. T., 2013. Soil Water Dynamics. *Nature Education Knowledge* 4(5):9. <https://www.nature.com/scitable/knowledge/library/soil-water-dynamics-103089121/>

Potapov, A. et al, 2022. Feeding habits and multifunctional classification of soil-associated consumers from protists to vertebrates. Biological Reviews 97(3): 1057-1117. <https://onlinelibrary.wiley.com/doi/full/10.1111/brv.12832>

Potapov, A., 2022. Multifunctionality of belowground food webs: resource, size and spatial energy channels. Biological Reviews <https://onlinelibrary.wiley.com/doi/epdf/10.1111/brv.12857>

Ripple, W.J. et al. 2017. World Scientists’ Warning to Humanity: A Second Notice. *BioScience*, 67(12), 1026–1028. <https://academic.oup.com/bioscience/article/67/12/1026/4605229>

Ripple, W.J. et al. 2020. World Scientists’ Warning of a Climate Emergency. BioScience, 70(1), 8–12. <https://doi.org/10.1093/biosci/biz088>

Ripple, W.J., et al. 2021. World Scientists’ Warning of a Climate Emergency 2021. BioScience, 71(9), 894–898. <https://academic.oup.com/bioscience/article/71/9/894/6325731>

Rockstrom et al (2009). A safe operating space for humanity. *Nature* 461, 472-475.

Sachs, J. et al 2018. Six transformations to achieve the SDGs. *Nature Sustainability* 2: 805-814.

Sayer, J et al. 2019. SDG 15: Life on Land – The Central Role of Forests in Sustainable Development. Chapter 15 In: Katila, et al. Sustainable Development Goals: Their impacts on forests and people. <https://www.cambridge.org/core/books/sustainable-development-goals-their-impacts-on-forests-and-people/sdg-15-life-on-land-the-central-role-of-forests-in-sustainable-development/71022020344AF64457556C837DC669C0>

Steffen, W., et al 2015. The trajectory of the Anthropocene: the great acceleration. *The Anthropocene Review*, 2(1), 81-98.

Vitousek et al, 1997. Human domination of Earth’s ecosystems. *Science* 272:494-499.

**Books (I have copies of these if you cannot locate them in the library):**

Aarssen, L. 2015. What are we?  Exploring the evolutionary roots of our future. Especially Chapter 12 – Becoming the solution.

Brady N.C. 2001. The Nature and Properties of Soils. 13th edn. Prentice Hall.

Brady and Weil. 2010. Elements of the Nature and Properties of Soils 3 edn. Pearson

Chapin, F.S. III, Kofinas, G.P. and Folke C. 2009. Principles of Earth System Stewardship – Resilience-based Natural Resource Management in a Changing World. Springer.

Coleman, D.C., D.A.J. Crossley, and P.F. Hendrix. 2004. Fundamentals of Soil Ecology. 2nd ed., Amsterdam: Elsevier.

Jacobsen, M. C., R. J. Charlson, et al. 2000. Earth System Science - From Biogeochemical Cycles to Global Change. Amsterdam, Academic Press.

Jeffreys, D.W. 1987. Soil- Plant Relationships – An Ecological Approach. Springer.

Jenny, H. 1994. Factors of Soil Formation – A system of Quantitative Pedology

Kimmerer, R. W. 2013. Braiding Sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants. Milkwood books.

Macy, J and Johnstone, C. 2012. Active Hope: How to Face the Mess We're in without Going Crazy. New World Library.

Montgomery, C. 2007. Dirt: The erosion of civilisations. University of California Press.

Paul, E.A. 2015. Soil Microbiology, Ecology and Biochemistry. 4th edn. Academic Press.

Schlesinger, W. H. (1997). Biogeochemistry - An Analysis of Global Change. San Diego, Academic Press.

Sheldrake, M. 2021. Entangled Life: How Fungi Make Our Worlds, Change Our Minds & Shape Our Futures

Simard, S. 2021. Finding the Mother Tree - Discovering the Wisdom of the Forest

Suzuki, D. and H. Dressel (2010). More Good News: Real solutions to the global eco-crisis. Vancouver, Greystone.

Wright, R. (2004). A Short History of Progress. New York, Carroll and Graf.

Wolfe, D. 2001. Tales from the Underground. Cambridge, Perseus Publishing.

Yong, W. 2016. I Contain Multitudes.

**Indigenous perspectives:**

**The Words That Come Before All Else** (Thanksgiving Address) are an ancient supplication of the indigenous Six Nations peoples of Northeastern North America, the Mohawks, Onondaga, Oneida, Cayuga, Seneca and Tuscarora. The address is not a prayer but expresses gratitude and empathic connection to all of creation. The Words Before All Else are the words that Haudenosaunee  (Ho doe na show knee) people speak before ceremonial and governmental gatherings and some people speak it to start and end their days. The words address the People, Earth Mother, The Waters, Fish, Plants, Food Plants, Medicine Herbs, Trees, Birds, Four Winds, Thunderers, Sun, Grandfather Moon, Stars, Enlightened Teachers, and The Creator. Each element of the natural world is spoke to and thanked for their contributions to all life. These words bind us and promote empathy with all creation. <https://donnallong.com/sustainable-living/words-before-all-else/>; <https://www.smithsonianmag.com/blogs/national-museum-american-indian/2018/11/22/haudenosaunee-thanksgiving-address/>

**U.N. Sustainable Development Goals globally and at Queen’s:**

<https://sdgs.un.org/goals/goal15>

<https://sdg.iisd.org/commentary/guest-articles/where-are-we-in-achieving-sdg-15/>

<https://sdg-tracker.org/biodiversity>

Anonymous. 2022. Biodiversity faces its make-or-break year, and research will be key. Editorial. *Nature* 601, 298. *doi:* [*https://doi.org/10.1038/d41586-022-00110-w*](https://doi.org/10.1038/d41586-022-00110-w)

<https://www.queensu.ca/gazette/stories/transforming-global-academy?utm_source=e-queens-gazette_faculty&utm_medium=e-newsletter>

<https://www.queensu.ca/gazette/stories/what-are-un-sustainable-development-goals>

<https://www.queensu.ca/gazette/stories/queen-s-community-comes-together-illustrate-social-impact?utm_source=e-queens-gazette_faculty&utm_medium=e-newsletter>

**High quality relevant journals:**

[Agriculture, Ecosystems and Environment](http://www.journals.elsevier.com/agriculture-ecosystems-and-environment/)

[Bioscience](http://www.bioone.org/bioone/?request=get-journals-list&issn=0006-3568)

[Ecological Applications](http://www.esajournals.org/loi/ecap)

[Ecosystems](http://link.springer.com/journal/10021)

[Environmental Research Letters](http://iopscience.iop.org/1748-9326/)

[Frontiers in Ecology and Environment](http://www.frontiersinecology.org/front/)

[Global Change Biology](http://www.blackwell-synergy.com/Journals/member/institutions/issuelist.asp?journal=gcb)

[Issues in Ecology - Ecological Society of America](http://www.esa.org/esa/?page_id=1638)

[Nature](http://www.nature.com/)

[Proceedings of the National Academy of Sciences (PNAS)](http://www.pnas.org/)

[Science](http://www.sciencemag.org/)

**Other potentially interesting electronic media links:**

**A Life on Our Planet** (2020)~80 minute documentary by David Attenborough (available on Netflix <https://www.netflix.com/browse?jbv=80216393> , and <http://www.documentarymania.com/player.php?title=David%20Attenborough:%20A%20Life%20on%20Our%20Planet>)

**Surviving progress** (2011) Available via Queen’s library video collection (NFB) at: <https://www-nfb-ca.proxy.queensu.ca/film/surviving-progress/>

**Food Inc.** Documentary film about the industrialisation of food production. Excellent. Available via Queen’s library video collection entitled Criterion on Demand at <https://media3-criterionpic-com.proxy.queensu.ca/htbin/wwform/006?T=AL111097>

**The Biggest Little Farm** (documentary about a city couple who leave regular life to develop a sustainable farm). Available on Netflix, and via Queen’s library video collection entitled Criterion on Demand at <https://media3-criterionpic-com.proxy.queensu.ca/htbin/wwform/006?T=110082E>

**The Call of the Mountain**: Arne Naess and the Deep Ecology Movement (full version ~ 50 mins) <https://www.youtube.com/watch?v=Wf3cXTAqS2M>

**Forget Taking Shorter Showers** – A focus on the impact of personal versus organizational level change:  <https://www.youtube.com/watch?v=m2TbrtCGbhQ>

The ‘**Pale Blue Dot’**, and Carl Sagan quote:

<https://www.planetary.org/explore/space-topics/earth/pale-blue-dot.html>

<https://solarsystem.nasa.gov/resources/536/voyager-1s-pale-blue-dot/>

Richard Dawkins interviews Satish Kumar on **science and spirituality** (Enemies of Reason Uncut Interviews – 38 minutes) <https://www.youtube.com/watch?v=19Sqt-zqmrk>

**Will we survive this century?** TedTalk by Martin Rees who served as Britain’s Astronomer Royal (14 minute talk) <http://www.ted.com/talks/lang/eng/martin_rees_asks_is_this_our_final_century.html>

Jared Diamond on why societies collapse (20 minute talk) <http://www.ted.com/talks/jared_diamond_on_why_societies_collapse.html>

The Stockholm Resilience Centre – Sustainability Science for Biosphere Stewardship <https://www.stockholmresilience.org>

Future Earth: <https://futureearth.org>

Center for Applied Cultural Evolution: https://culturalevolutioncenter.org/about-us/