

Course book:

Principles of Terrestrial Ecosystem Ecology (2011). Chapin F.S. III, P.A. Matson, and P.M. Vitousek. Springer Science + Business Media, LLC, New York.

Topical weeks – reading list*Introduction to forest ecosystem ecology*

- Course book chapter 1

Carbon

- Course book: chapters 5-7
- Additional papers:
 - Koch et al 2004 The limits of tree height, *Nature*, 428:851-854.
 - Bonan, G. B., 2008 Forests and climate change: Forcings, Feedbacks, and the Climate Benefits of Forests, *Science* 320:1444-1449.
 - Wei et al., 2014 3-PG simulations of young ponderosa pine plantations under varied management intensity: Why do they grow so differently? *Forest Ecology and Management*, 313:69-81.
 - Janssens et al., 2001, 7, 269-278 Productivity overshadows temperature in determining soil and ecosystem respiration across European forests, *Global Change Biology*, 7:269-278.
 - Berg, B., 2018, Decomposing litter; limit values; humus accumulation, locally and regionally, *Applied Soil Ecology*, pp 494-508

Water

- Course book chapters 4, 5 (p.129-133), 7 (p. 217-223), 9 (p. 263-266)
- Additional papers:
 - Ellison D. et al. 2017. Trees, forests and water: Cool insights for a hot world. *Global Environmental Change* 43: 51-61
 - Evaristo J. et al. 2015. Global separation of plant transpiration from groundwater and streamflow. *Nature* 525: 91-94
 - Allen G.H. and Pavelsky T. M. 2018. Global extent of rivers and streams. *Science* 361: 585-588.

Biochemistry

- Course book chapter 9 (197-220)
- Additional papers:
 - Van Breemen et al., 1983. Acidification and alkalization of soils. *Plant and soil* 75:283-308.
 - A.J.B. Zehnder and B.H. Svensson, 1986, Life without oxygen: what can and what cannot? *Experientia* 42: 1197-1205

Microbiology

- Course book chapters: 7, 8, 9
- Additional papers:
 - Högberg, P., Näsholm, T., Franklin, O., Högberg, M.N. (2017) Tamm Review: On the nature of the nitrogen limitation to plant growth in Fennoscandian boreal forests. *Forest Ecology and Management* 403, 161-185.

- Högberg, M.N., Briones, M.J.I., Keel, S.G., Metcalfe, D.B., Campbell, C., Midwood, A.J., Thornton, B., Hurry, V., Linder, S., Näsholm, T. and Högberg, P. (2010) Quantification of effects of season and nitrogen supply on tree below-ground carbon transfer to ectomycorrhizal fungi and other soil organisms in a boreal pine forest. *New Phytologist* 187, 485-493.
- Crowther et al. (2019). The global soil community and its influence on biogeochemistry. *Science* 365, DOI: 10.1126/science.aav0550
- Bennett et al (2017). Plant-soil feedbacks and mycorrhizal type influence temperate forest population dynamics. *Science* 355: 181-184.

Species and trophic interactions

- Course book chapters: 8, 10
- Additional papers:
 - Richardson, J. S., & Sato, T. (2015). Resource subsidy flows across freshwater-terrestrial boundaries and influence on processes linking adjacent ecosystems. *Ecohydrology*, 415(April 2014), 406–415. <https://doi.org/10.1002/eco.1488>
 - Wardle et al. (2004). Ecological linkages between aboveground and belowground biota. *Science* 304: 1629-1633.

Biodiversity and functions

- Course book chapters 11, 13
- Additional papers:
 - Boonstra et al. 2016. Why do the boreal forest ecosystems of northwestern Europe differ from those of Western North America? *Bioscience* 66: 722-734.
 - Hooper et al. 2005. Effects of biodiversity on ecosystem functioning: A consensus of current knowledge. *Ecological monographs* 75: 3-35.

Global perspectives

- Course book chapters 14
- Additional papers:
 - Gamfeldt, L., Snäll, T., Bagchi, R., Jonsson, M., Gustafsson, L., Kjellander, P., et al. (2013). Higher levels of multiple ecosystem services are found in forests with more tree species. *Nature Communications*, 4.
 - Nilsson, C., Polvi, L. E., Gardeström, J., Hasselquist, E. M., Lind, L., & Sarneel, J. M. (2015). Riparian and in-stream restoration of boreal streams and rivers: success or failure? *Ecohydrology*, 8, 753–764. <https://doi.org/10.1002/eco.1480>
 - Gauthier et al. (2015). Boreal forest health and global change. 349: 819-822.
 - Ceccherini et al. (2020). Abrupt increase in harvested forest area over Europe after 2015. *Nature* 583, pages72–77. <https://doi.org/10.1038/s41586-020-2438-y>