# Elizabeth M Wolkovich

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## Education

**Dartmouth College, Ph.D.** *2009*

Thesis: Linking community and ecosystem dynamics in invasion biology: An experimental approach in coastal sage scrub.
Advisors: Douglas T. Bolger & Kathryn L. Cottingham
Committee: Matthew P. Ayres, Ross A. Virginia, John C. Moore (outside member from NREL)

**Wellesley College, B. A.** *2002*

Major in Biological Sciences. Minor in Russian. Study-abroad in Oaxaca, Mexico

## Appointments

Associate Professor (CRC 2) Forest & Conservation Sciences, University of British Columbia *2018-present*

Assistant Professor, Organismic & Evolutionary Biology, Harvard University 2014-2017

Biodiversity Research Centre Fellow, University of British Columbia *2012-2013*

NSF Postdoctoral Fellow in Bioinformatics, University of California - San Diego *2010 - 2011*

Postdoctoral Associate (6-mo), National Center for Ecological Analysis & Synthesis *2009*

Lecturer, Dartmouth College, Environmental Studies Program *winter term - 2009*

## Grants & Fellowships

**NSERC Alliance International Collaboration** ($299,980, PI, co-PI: Hille Ris Lambers) *2025-2028*
How temporal and spatial mosaics of reproduction determine forest communities

**Banff International Research Station for Mathematical Innovation and Discovery:** How do trees grow in a non-stationary climate (Research in Teams) *2025*

**Swiss National Science Foundation** (CHF 450,000, co-PI with Janneke Hille Ris Lambers) *2025-2027*
MastFor: Costs and Benefits of Masting in Temperate Forest Communitiues

**Canada Research Chair (CRC) Tier 2** in Temporal Ecology ($500,000) *2024-2029*

**NSERC Discovery ($**235,000 total over 5 years) *2024-2029*
How shifts in biological time and extended seasons alter plant growth across species with climate change

**Canada Foundation for Innovation** ($829,000) *2019-2024*
Warmer winters & future forests: How climate and phenology shape temperate woody species communities in North America and globally

**Canada Research Chair (CRC) Tier 2** in Temporal Ecology ($600,000) *2019-2024*

**NSERC Discovery ($**282,000 total over 6 years) *2018-2024*
Predicting future forests: Understanding diverse phenological responses in North American temperate forests and globally

**BC Farm Adaptation & Innovation Program** ($238,660) *2019-2023*

Modeling winegrape phenology for a warming Okanagan

**BRC Grant for Catalyzing Research Clusters (**UBC, $25,360) *2023*
Accelerating Science through Generative Bayesian modeling (working group & training)

**Faculty of Forestry Seed Money Grant (**UBC, $19,880) *2023*
Warmer springs and stagnate growth (Proof of concept funding)

**Milton Fund (**Harvard University, $39,766) *2015*
Phenological responses to climate change: Plasticity, local adaptation and the diversity of species' responses

**Radcliffe Institute Exploratory Seminar (**$20,930, Ailene Ettinger co-PI) *2015-2016*
Predicting future springs: Reconciling experimental and observational approaches for climate change impacts

**Biodiversity Postdoctoral Fellowship** (UBC, $100,000) *2012 - 2013*

**NCEAS Working Group** (co-PI with Benjamin I. Cook, $70,250 plus extension) *2010 - 2012*
Forecasting phenology: Integrating ecology, climatology, and phylogeny to understand plant responses to climate change

**NSF Postdoctoral Research Fellowship in Biology** (**Bioinformatics,** $123,000) *2010 - 2011*
Phenology of plant invasions: How changing seasons and temporal niches assemble plant communities

**EPA Science to Achieve Results (STAR) Fellowship** ($111,000) *2006 - 2009*
Impact of invasive plants on detrital food webs

**SERDP & Southwest Chapter Travel Awards, ESA** *August 2009*

**ESA Applied Section Student Travel Grant** *June 2008*

**Jenks Prize, Dartmouth College** ($2,000) *June 2008*
Funding to attend UC-Davis Advanced Entomology (Taxonomy & Field Ecology) course

**Gilman Fellowship, Dartmouth College** ($1,500) *July 2007*
Funding to participate in global collaborative fertilization/exclosure study (Nutrient Network)

**Exotic/Invasive Pests and Diseases Research** (**UC-IPM,** $23,990) *September 2006 - August 2008*
Title: Impact of exotic Mediterranean annual grasses on detrital food webs

**Parkinson Travel Award, Soil Ecology Society** *April 2007*

**GAANN Fellowship, Dartmouth College** ($30,000) *September 2005 - August 2006*

**Center for Invasive Plant Management Seed Money Grant** ($4,939) *April 2005 - May 2006*

## Awards & honors

**Killam & ETH Rubel Foundation Fellowships** for sabbatical research on eco-climate hazards *2022*

**Early Career Fellow,** Ecological Society of America (ESA) *2016-2020*

**Tansley Medal Runner-up,** *New Phytologist* *2013*

**Murray F. Buell Award for best student oral presentation (ESA)** *2009*

**Graduate Student Filene Teaching Award,** Dartmouth College *2009*

## Publications

*Denotes lab member; note that last author is senior author.

76. **Wolkovich, E. M.,** Ettinger*, A.K., Chin, A., Chamberlain*, C. J., Baumgarten*, F., Pradhan, K., Manzanedo, R.D. & J. Hille Ris Lambers. Why longer seasons with climate change may not increase tree growth. *In press* at *Nature Climate Change.*

75. **Wolkovich, E. M.,** Rouleau-Desrochers*, C. García de Cortázar-Atauri, I., Walker, M. A. & T. Lacombe. Building a more predictive model of terroir for the Anthropocene. *Plants, People & Planet:* doi.org/10.1002/

ppp3.70055

74. Van der Meersch*, V. and **E. M. Wolkovich**. 2025. Summer solstice optimizes the thermal growing season. *PNAS*. 122(23):e2506796122.

73. Walde, M., Vitasse, Y. and **E. M. Wolkovich.** Rethinking the interpretation of spring phenological sensitivity under warmer climates. *In press* at *npj Science of Plants*.

72. **Wolkovich, E. M.,** Cook, B.I., García de Cortázar-Atauri, I., V. Van der Meersch,* Lacombe, T., Marcal, C. & I. Morales-Castilla.* 2025. Uneven impacts of climate change around the world and across the annual cycle of winegrapes. *PLOS Climate.* 4(5): e0000539. https://doi.org/10.1371/journal.pclm.0000539.

71. Pearse, W., Davies, T.J. & **E. M. Wolkovich**. 2025. How to define, use, and interpret Pagel's ƛ (lambda) in ecology and evolution. *Global Ecology & Biogeography.* 34: e70012. https://doi.org/10.1111/geb.70012

70. **Wolkovich, E. M.** The problem of terroir in the Anthropocene. 2025. *Harvard Data Science Review.* 7(2). https://doi.org/10.1162/99608f92.d605e50f

69. Cleland[§], E.E. & **E. M. Wolkovich**[§]. 2024. Effects of Phenology on plant community assembly and structure. *Annual Review of Ecology, Evolution & Systematics. 55(1), 471-492.* [§]Both authors contributed equally to work.

68. Loughnan*, Joly, S., Legault*, G., Kharouba, H., Betancourt, M. & **E. M. Wolkovich**. 2024. Phenology varies with phylogeny but not by trophic level with climate change. *Nature Ecology & Evolution. 8(10), 1889-1896.*

67. Morales-Castilla*, I., Davies, T. J., Legault*, G., Buonaiuto*, D. M., Chamberlain*, C.J., Ettinger*, A.K., Garner*, M., Jones*, F. A., Loughnan*, D. L., Pearse, W. Sodhi*, D. & **E. M. Wolkovich**. 2024. Phylogenetic estimates of species-level phenology improve ecological forecasting. *Nature Climate Change.* 14(9): 989-995.

66. Zeng*, Z.A. and **Wolkovich, E.M**. 2024, Weak evidence of provenance effects in spring phenology across Europe and North America. *New Phytologist*. 242(5): 1957-1964

65. **Wolkovich, E.M.** 2024. 'Obviously ChatGPT' — how reviewers accused me of scientific fraud. *Nature (Careers)*: doi.org/10.1038/d41586-024-00349-5 (not peer-reviewed)

64. Jones*, F. J. , Bogdanoff, C. & **E. M. Wolkovich**. 2024. The role of genotypic and climatic variation at the range edge: A case study in winegrapes. *American Journal of Botany* (111): e16270

63. Buonaiuto*, D. M., Davies, T.J ., Collins*, S. & **E. M. Wolkovich**. 2024. Ecological drivers of flower–leaf sequences: aridity and proxies for pollinator attraction select for flowering-first in the American plums. *New Phytologist*: doi.org/10.1111/nph.19685

62. Rivest, S. A., **Wolkovich E. M.** & H. M. Kharouba. 2023. Flowering phenology influences butterfly nectar foraging on non-native plants in an oak savanna. *Ecology* (104): e4004.

61. Chamberlan*, C. J. & **E. M. Wolkovich**. 2023. Variation across space, species and methods in models of spring phenology. *Climate Change Ecology* (5): 100071.

60. Buonaiuto*, D. M. , Donahue, M. J. & **E. M. Wolkovich**. 2023. Experimental designs for testing the interactive effects of temperature and light in ecology and the problem of periodicity. *Functional Ecology* (37): 1747-1756

59. Buonaiuto*, D. M. & **E. M. Wolkovich**. 2023. Contrasting responses to climate variability generate seasonal priority effects between native and invasive forest herbs. *Journal of Ecology* (111): 1711-1721.

58. Kharouba, H. M. & **E. M. Wolkovich**. 2023. Lack of evidence for the match-mismatch hypothesis across terrestrial trophic interactions. *Ecology Letters* (26): 955-964

57. **Wolkovich, E. M.,** Chamberlain*, C.J., Buonaiuto*, D. M., Ettinger*, A.K. & I. Morales-Castilla.* 2022 Integrating experiments to predict interactive cue effects on spring phenology with warming. *New Phytologist.* 235: 1719-1728.

56. Ettinger*, A.K, Chamberlain*, C.J., & **E. M. Wolkovich**. 2022. The increasing relevance of phenology to conservation. *Nature Climate Change* (12): 305-309. (Invited, not peer-reveiwed)

55. **Wolkovich, E. M.,** Auerbach, J. A., Chamberlain*, C.J., Buonaiuto*, D. M., Ettinger*, A.K., Morales-Castilla*, I. & A. Gelman. 2021. A simple explanation for declining temperature sensitivity with warming. *Global Change Biology*: 10.1111/gcb.15746.

54. **Wolkovich, E. M.** & Donahue, M. 2021. How phenological tracking shapes species and communities in non-stationary environments. *Biological Reviews* (96) 2810-2827.

53. Eyster, H.* & **E. M. Wolkovich.** 2021. Comparisons in the native and introduced ranges reveal little evidence of climatic adaptation in germination traits. *Climate Change Ecology*: doi.org/10.1016/j.ecochg.2021.100023

52. Reimer, J. R., Arroyo-Esquivel, J. Jiang, J., Scharf, **Wolkovich, E. M.,** Zhu, K. & C. Boettiger. 2021. Noise can create or erase long transient dynamics. *Theoretical Ecology:* doi.org/10.1007/s12080-021-00518-6.

51. Buonaiuto*, D. M. & **E. M. Wolkovich**. 2021. Differences between flower and leaf phenological responses to environmental variation drive shifts in spring phenological sequences of temperate woody plants. *Journal of Ecology:* (109): 2922–2933.

50. Chamberlain*, C.J & **E. M. Wolkovich**. 2021. Late spring freezes coupled with warming winters alter temperate tree phenology and growth. *New Phytologist:* (231) 987–995.

49. Ettinger*, A.K., Buonaiuto*, D. M., Chamberlain*, C.J., Morales-Castilla* & **E. M. Wolkovich**. 2021. Spatial and temporal shifts in photoperiod with climate change. *New Phytologist*: 230 (2), 462-474.

48. Ettinger*, A.K., Chamberlain*, C.J., Buonaiuto*, D. M., Morales-Castilla*, I., Flynn*, D.F.B., Savas*, T., Samaha*, J. & **E. M. Wolkovich**. 2020. Winter temperatures predominate in spring phenological responses to warming. *Nature Climate Change*: 10 (12), 1137-1142.

47. Chamberlain*, C.J., Cook, B.I., Morales-Castilla*, I. & **E. M. Wolkovich**. 2020. Climate change reshapes the drivers of false spring risk across European trees. *New Phytologist*: 229 (1), 323-334

46. Merrill,* N.K., I., García de Cortazar-Atuari, I., T., Parker, A., Walker, M. A. & **E. M. Wolkovich**. 2020. Exploring grapevine phenology and high temperatures response under controlled conditions. *Frontiers in Environmental Science* (8) 220: 10.3389/fenvs.2020.516527

45. Buonaiuto*, D. M., Morales-Castilla*, I., **E. M. Wolkovich**. 2020. Reconciling competing hypotheses regarding flower–leaf sequences in temperate forests for fundamental and global change biology. *New Phytologist* (229) 1206-1214.

44. Kharouba, H. M. & **E. M. Wolkovich**. 2020. Disconnects between ecological theory and data in phenological mismatch research. *Nature Climate Change* (10) 406–415.

43. Morales-Castilla*, I., García de Cortazar-Atuari, I., Cook, B. I., Lacombe, T., Parker, A. van Leeuwen, C. & **E. M. Wolkovich**. 2020. Cultivar diversity buffers winegrowing regions from climate change losses. *PNAS*: 117 (6), 2864-2869.

42. Chamberlain*, C.J., Cook, B.I., Garía de Cortazar-Atuari, I. & **E.M. Wolkovich.** 2019. Rethinking false spring risk. *Global Change Biology* 25(7): 2209-2220.

41. **E.M. Wolkovich** & I. Morales-Castilla*. 2019. Climate change: Why varietal diversity is critical to winegrowing's warmer future. *Wine & Viticulture Journal* 34(1). (Invited, not peer-reviewed)

40. Joly, S, D. F. B. Flynn* & **E. M. Wolkovich**. 2019. On the importance of accounting for intraspecific genetic correlations in multi-species studies. *Methods in Ecology & Evolution* 10(7): 994-1001.

39. Davies, T. J., J. Regetz, **E. M. Wolkovich** & B. J. McGill. 2019. Phylogenetically weighted regression: a method for modeling non-stationarity on evolutionary trees. *Global Ecology & Biogeography* (28) 2: 275-285.

38. Ettinger,* A. K., Chuine I., Cook, B. I., Dukes, J. S., Ellison, A. M., Johnston, M. R., Panetta, A. M., C.R. Rollinson, C.R., Vitasse, Y., & **E.M. Wolkovich**. 2019. How do climate change experiments actually change plot-scale climate? *Ecology Letters* 22(4): 748-763.

37. Ettinger*, A., S. Gee* & **E. M. Wolkovich**. *2018.* Phenological sequences: how early-season events define those that follow. *American Journal of Botany:* 105(10):1771-1780.

36. Flynn*, D. F. B. & **E.M. Wolkovich**. *2018.* Temperature and photoperiod drive spring phenology across all species in a temperate forest community. *New Phytologist* (219) 1353-1362.

35. Kharouba, H. M., Ehrlen, J., Gelman, A., Bolmgren, K., Allen, J. M., Travers, S. & **E. M. Wolkovich**. 2018. Global shifts in the phenological synchrony of species interactions over recent decades. *PNAS: Apr 2018, ; DOI: 10.1073/pnas.1714511115*

34. **Wolkovich, E. M.**, I. García de Cortázar-Atauri, Morales-Castilla, I., K. A. Nicholas & T. Lacombe. 2018. From Pinot to Xinomavro in the world's future winegrowing regions. *Nature Climate Change:* 8:29-37.

33. **Wolkovich**, **E. M.,** D. O. Burge, M. A. Walker & K. A. Nicholas. 2017. Phenological diversity provides opportunities for climate change adaptation in winegrapes. *Journal of Ecology* 105:905-912.

32. **Wolkovich, E. M.** 2016. Reticulated channels in soil food webs. *Soil Biology and Biochemistry:* 102:18-21.

31. Cook, B. I. & **E. M. Wolkovich**. 2016. Climate change decouples drought from early winegrape harvests in France. *Nature Climate Change* 6:715-719.

30. Seabloom, E. W. & 66 co-authors (**Wolkovich, E. M.** co-author). 2015. Plant species' origin predicts dominance and response to nutrient enrichment and herbivores in global grasslands. *Nature Communications* 6: 7710, doi:10.1038/ncomms8710. (Publication from Nutrient Network.)

29. **Wolkovich, E. M.**, Cook, B. I., McLauchlan, K. K. & T. J. Davies. 2014. Temporal ecology in the Anthropocene. *Ecology Letters* 17(11): 1365–1379.

28. **Wolkovich, E. M.**, Allesina, S., Cottingham, K. L., Moore, J. C. & C. de Mazancourt. 2014. Linking the green and brown worlds: The prevalence and effect of multi-channel feeding in food webs. *Ecology* 95(12), 2014, pp. 3376–3386.

27. Francis, T. B., **Wolkovich, E. M.**, Scheuerell, M. D., Katz, S. L., Elizabeth E. E., & S. E. Hampton. 2014. Shifting regimes and changing interactions in the Lake Washington, U.S.A., plankton community from 1962-1992. *PLoS ONE* 9(10): e110363. doi:10.1371/journal.pone.0110363

26. **Wolkovich, E. M.** & A. K. Ettinger. 2014. Back to the future for plant phenology research. *New Phytologist* 203: 1021–1023. (Commentary)

25. **Wolkovich, E. M.** , B. I. Cook & T. J. Davies. 2014. Progress towards an interdisciplinary science of plant phenology: Building predictions across space, time and species diversity. *New Phytologist* 201: 1156–1162.

24. **Wolkovich, E. M.** & E. E. Cleland. 2014. Phenological niches and the future of invaded ecosystems with climate change. *AoB Plants* doi:10.1093/aobpla/plu013.

23. Davies, T. J., **E. M. Wolkovich** & 16 other co-authors. 2013. Phylogenetic conservatism in plant phenology. *Journal of Ecology* 101: 1520–1530.

22. **Wolkovich, E. M.,** Davies, T. J., Schaefer, H., Cleland, E. E., Cook, B. I., Travers, S. E. , Willis, C. G.

& C. C. Davis. 2013. Phenology and plant invasions: Climate change contributes to exotic species' success in temperature-limited systems. *American Journal of Botany* 100(7): 1407-1421.

21. Pau, S., **Wolkovich, E. M.**, Cook, B. I., Nytch, C., Regetz, J., Zimmerman, J. K. & S. J. Wright. 2013. Clouds and temperature drive dynamic changes in tropical flower production. *Nature Climate Change* 3: 838-842.

20. **Wolkovich, E. M.** & 18 co-authors. 2012. Warming experiments underpredict plant phenological responses to climate change. *Nature* 485 (7399): 494-497. (Recommended by Faculty of 1000)

19. **Wolkovich, E. M.,** Regetz, J. & M. I. O'Connor. 2012. Advances in global change research require open science by individual researchers. *Global Change Biology* 18(7): 2102-2110.

18. Cook, B. I., **Wolkovich, E. M.** & C. Parmesan. 2012. Divergent responses to spring and winter warming explain community level flowering trends. *Proceedings of the National Academy of Sciences* 109(3): 9000-9005.

17. Cleland, E. E., J. M. Allen, T. M. Crimmins, J. A. Dunne, S. Pau, S. E. Travers, E. S. Zavaleta & **E. M. Wolkovich.** 2012. Phenological tracking enables positive species responses to climate change. *Ecology* 93(8): 1765-1771.

16. Davies, T.J., Kraft, N.B.J., Salamin, N. & **E. M. Wolkovich**. 2012. Incompletely resolved phylogenetic trees inflate estimates of phylogenetic conservatism. *Ecology* 93(2): 242-247.

15. Pau, S, Gillespie, T. W., & **E. M. Wolkovich**. 2012. Dissecting NDVI-species richness relationships in Hawaiian dry forests. *Journal of Biogeography* 39(9): 1678-1686.

14. Wainwright, C. E., **E. M. Wolkovich** & E. E. Cleland. 2012. Seasonal priority effects: implications for invasion and restoration in a semi-arid system. *Journal of Applied Ecology* 49(1): 234-241. (Recommended by Faculty of 1000)

13. Craine, J. M., **E. M. Wolkovich** & E. G. Towne. 2012. The roles of shifting and filtering in generating community-level flowering phenology. *Ecography* 35(11): 1033-1038.

12. Cook, B. I., **E. M. Wolkovich** & 17 co-authors. 2012. Sensitivity of spring phenology to warming across temporal and spatial climate gradients in two independent databases. *Ecosystems* 15(8): 1283-1294.

11. Craine, J. M., **E. M. Wolkovich**, E. G. Towne & S. W. Kembel. 2011. Flowering phenology as a functional trait. *New Phytologist* 193: 673-682.

10. **Wolkovich, E. M.** & E. E. Cleland. 2011. The phenology of plant invasions: A community ecology perspective. *Frontiers in Ecology & the Environment* 9(5): 287-294. (Recommended by Faculty of 1000)

9. Pau[§], S., **Wolkovich[§], E.M.**, Cook, B. I., Davies, T.J., Kraft, N.J.B., Bolmgren, K., Betancourt, J. & E.E. Cleland. 2011. Predicting phenology by integrating ecology, evolution and climate science. *Global Change Biology* 17: 3633–3643. [§]Both authors contributed equally to work.

8. Wilson[§], E. E. & & **E. M. Wolkovich[§].** 2011. Scavenging: How carnivores and carrion structure communities. *Trends in Ecology & Evolution* 26(3): 129-135. [§]Both authors contributed equally to work.

7. Firn, J. & 32 co-authors (**Wolkovich, E. M.** co-author) 2011. Abundance of introduced species at home predicts abundance away in herbaceous communities. *Ecology Letters* 14(3): 274-281. (Publication from Nutrient Network. Assisted with writing, editing and statistical analyses.)

6. **Wolkovich E. M.**, Lipson, D. A., Virginia, R. A., Bolger, D. T., & K. L. Cottingham. 2010. Grass invasion causes rapid increases in ecosystem carbon and nitrogen storage in a semi-arid shrubland. *Global Change Biology* 16(4): 1352-1365.

5. **Wolkovich E. M.** 2010. Non-native plant litter enhances grazing arthropod assemblages by increasing na-

tive shrub growth. *Ecology* 91(3): 756-766.

4. **Wolkovich, E. M.** 2010. Defining and re-defining invasion biology. *Journal of Vegetation Science* 21(4): 804-806. (Book review)

3. **Wolkovich E. M.**, D. T. Bolger & D. A. Holway. 2009. Complex responses to invasive grass litter by ground arthropods in a Mediterranean shrub ecosystem. *Oecologia* 161(4): 697-708.

2. **Wolkovich, E. M.**, D. T. Bolger & K. L. Cottingham. 2009. Invasive grass litter facilitates native shrubs through abiotic effects. *Journal of Vegetation Science* 20(6): 1121-1132.

1. Buchholtz, E. A., **E. M. Wolkovich** & R. J. Cleary. 2005. Vertebral osteology and complexity in *Lagenorhynchus acutus* (Delphinidae) with comparison to other Delphinoid genera. *Marine Mammal Science* 21:411-428.

## Publications – in review or revision*

*All avaiable upon request.

77. **E. M. Wolkovich**, Davies, T.J., Pearse, W. & M. Betancourt. A four-step simulated-based workflow for improving ecological science. Submitted to *Philosophical Transactions of the Royal Society A.*

78. Davies, T.J., Hille Ris Lambers, J. & **E. M. Wolkovich**. The Janzen-Connell hypothesis and seed masting. In review at *Trends in Ecology & Evolution.*

*79.* Van der Meersch*, V., Regetz, J., Davies, T.J. & **E. M. Wolkovich**. Closing the gap between statistical and scientific workflows for improved forecasts in ecology. Submitted to *Philosophical Transactions of the Royal Society A.*

## Teaching

**Associate Professor**, University of British Columbia *2018-onward*

Ecology in a changing climate (CONS 310)
Experimental design and hierarchical model building with Bayesian inference (FRST 507C-202)
Bayesian modeling group at UBC (meets 2X/monthly, 2020-2021, 2025)
Guest lecturer, Montpellier SupAgro (virtual, 2024)
Guest taught Southern African (Dartmouth, ENVS) at Gobabeb Namib Research Institute (2019)
Short course on Bayesian model building with Michael Betancourt (2018)
Generative model building with Bayesian inference, designed and led short course with guest instructors: Michael Betancourt, Harold Eyster, Vianey Leos Barajas, Andrew MacDonald, Will Pearse (2024)

**Assistant Professor**, Harvard University *Fall 2014-2017*

Modern Conservation Biology (OEB 216; seminar course)
Introduction to Biological Statistics (OEB 153; co-taught with John Wakeley)
Introduction to Experimental Design and Model Building (OEB 201)

**Lecturer,** with full course responsibilities, Dartmouth College *Winter 2009*

Wilderness & Society, Environmental Studies 7

**Teaching Assistant**, Dartmouth College *Fall 2003-2007*

Ecological Research in the Tropics I & II (study abroad in Costa Rica)
Ecological Research on Coral Reefs (study abroad, two years: Jamaica and Little Cayman)
Methods in Ecology (2006, Guest-taught Nutrient Network section in 2007-2009)
Introduction to Ecology & Evolution
Vertebrate Biology
Conservation Biology (Environmental Studies Program)
Introduction to Environmental Studies (Environmental Studies Program)

**Mentoring**, University of British Columbia *2018-onward*

Mira Garner (2019-2021), MSc thesis: Duration of interphenophases in winegrapes
Darwin Sodhi (2019-2021), Graduate student
Deirdre Loughnan (2018-2024), Graduate student (PhD), studied how climate and traits shape forest tree phenology and global patterns of trophic asynchrony
Xiaomao Wang (2024-*current*), Graduate student (PhD), investment in growth versus reproduction of forest trees with climate change
Christophe Rouleau-Desrochers (2024-*current*), Graduate student (MSc, with NSERC), understanding how longer growing seasons impact tree growth
Faith Jones (2019-2022), Postdoctoral Fellow
Geoff Legault (2019-2022), Postdoctoral Fellow
Frederik Baumgarten (2023-2024), Postdoctoral Fellow on Swiss Mobility Grant Victor Van der Meersch (2025-*current*), Postdoctoral Fellow working on tree growth dyanmics
Undergraduates: NSERC USRA awardees: Mika Yasutake (Summer 2019), Adam Fong (Summer 2020-2021); Sophia Collins (Summer 2021-Spring 2023), Tolu Amuwo (also Co-op and in lab through Fall 2023, Summer 2020), Christophe Rouleau-Desrochers (Summer 2023 & Summer 2024).
Work-Learn International: Kelley Slimon (Summer 2019-2020), Phoebe Autio (Summer 2020-2021), Alina Zeng (Summer 2021-Spring 2023), Dinara Mamatova (Summer 2022), Hoai Huang Nguyen (2021-2024*),* Ken Michiko Samson (Summer 2024 through Spring 2025), Britany Wu (Summer 2023 - Summer 2024), Qingyang (Devina) Deng (Summer 2025).
Undergraduate Research Assistants: Sadie Larter (2019), Hannah Bates (2020), Sandy Zhang (2019-2024), Grace Gooding (2022), Monica Nguygen (2022-2023), Dajeong Kim (2023-*onward),* Justin Ngo (2023-*onward*), Selena Shew (Fall 2023-Summer 2024), Julie Sieg (2023-2024), Mark Pan (2024-2025), Colette Bennett (2024-2025), Nolan Meier (Summer 2025).

**Mentoring**, External (multiple universities) *2020-onward*

External Committee member for R. Lin in Statistics (George Mason University, 2024-*current*)
External member for F. Baumgarten PhD defense in Statistics (September 2022, ETH)
External member for J. Auerbach PhD defense in Statistics (August 2020, Columbia University)

**Mentoring**, Harvard University *2014-2022*

Daniel Buonaiuto (2016-2022), PhD thesis: Phenological sensitivity as a mediator of plant interactions
Catherine Chamberlain (2016-2021), PhD thesis: Climate change alters temperate tree and shrub spring phenology and false spring risk.
Ailene K. Ettinger (2014-2018), Putnam & NSF Postdoctoral Fellow. Future predictions from current plant collections: Exploiting the novel climates of arboreta to understand tree responses to climate change.
Dan Flynn (2014-2016), Research Associate. Trait-based approaches to understanding adaptation with global change.
Ignacio Morales-Castilla (2016-2017), Research Associate. Predicting the world's future winegrowing regions and varieties.
Undergraduate Honors Thesis Students: Harold Eyster (2016), Sally Gee (2016), Alice Linder (2017)
Undergraduate Research Assistants (2014-2017): Ryan Antolick, Johan-Arango, Terilyn Chen, Nakoa Farrant, Magaly Gutierrez, Robert Hogg, Ari Korotkin (HUCE), Zhi Li (2017-2018), Alice Linder (Harvard Forest REU), Nicole Merrill, Cara O'Connor (HUCE), Asa Peters (DaRin Butz Intern), Christine Parkent (2017), Cat Principe, Liz Stebbins, Harry Stone, (Harvard Forest REU), Emma Borjigin Wang.

**Mentoring**, University of California - San Diego *2010-2011*

Worked with one student on phenology bioinformatics and field bird exclosure project.

**Mentoring**, Dartmouth College *2006-2008*

Worked with 10 undergraduate students in the lab and field, especially with two women for two years: both later completed PhDs in ecology.

## Selected Presentations

Wolkovich, E. M. 2025. Recovery from climate-related events: Matching variety to climate. Canadian Grapevine Certification Network Webinar Series (Virtual).

Wolkovich, E.M. 2024. How winter temperatures may control global forecasts of forest carbon sequestration. AGU Fall Meeting (USA).

Wolkovich, E.M. & J. Auerbach. 2024. Modeling biological processes as stopped random walks with R and Stan (Invited webinar for Statistical Methods Webinar hosted by EFI and ESA Statistical Ecology Section.

Wolkovich, E.M. & J. Auerbach. 2024. Is the global fingerprint of climate change slowing down with accelerated warming? ICORS meets DSSV. (Invited).

Wolkovich, E.M. 2024. Lessons on variety research with climate change. BC Horticultural Show (Canada).

Wolkovich, E.M., Ettinger, A.K.E., Garner, M. 2023. Growth-reproduction trade-offs in phenological events from forests to vineyards. AGU Fall Meeting (USA).

Wolkovich, E.M. 2023. The Problem of Time in Climate Change Ecology. Séminaires d'Écologie et d'Évolution de Montpellier – France (CEFE).

Wolkovich, E. M. The Problem of Time in Climate Change Ecology at University of Alcalá, 2022.

Wolkovich, E. M. 2022. Modeling grapevine phenology & Impacts of climate change on viticulture. International Cool Climate Wine Symposium at Brock University.

Wolkovich, E. M. 2021. Null models in Temporal Ecology. Helmholtz Institute's 3rd Symposium on Functional Marine Biodiversity (Virtual)

Wolkovich, E. M., Ettinger, A. K., Chamberlain, C.J., Morales-Castilla, I., Buonaiuto. 2020. How a 90 minute fake data simulation solved a 3000 hour puzzle. NOAA Northest Fisheries (Virtual)

Wolkovich, E. M., Ettinger, A. K., Chamberlain, C.J., Morales-Castilla, I., Buonaiuto. 2020. Chilling dominates forcing and photoperiod cues to determine tree budburst in experiments, complicating forecasts for natural systems. American Geophysical Union's annual meeting.

Wolkovich, E. M. & D. F. B. Flynn. 2017. Phenological assembly in plant communities. Ecological Society of America Annual Meeting. (Invited)

Wolkovich, E. M. & D. F. B. Flynn. 2017. The role of phenological assembly in plant communities. Canadian Society for Ecology & Evolution Meeting. (Invited)

Wolkovich, E. M. 2017. The race for spring: How climate change alters plant communities. University of Toronto Atwood Colloqium. (Invited)

Wolkovich, E. M. From Pinot to Xinomavro: The world's future winegrowing regions. 2017. Harvard University FOOD+ Symposium. (Invited)

Wolkovich, E. M. 2017. Consumer communities in green, brown and non-stationary systems. 15 Years of the Jena Experiment (Jena, Germany; Invited)

Wolkovich, E. M. 2016. The race for spring: How climate change alters forest plant communities. Montreal Botanical Garden. (Invited)

Wolkovich, E. M. 2015. From Pinot to Cabernet: The future of good wine with climate change. Harvard University FOOD+ Symposium. (Invited)

Wolkovich, E. M. 2015. World Wildlife Fund's Kathryn Fuller Science for Nature Seminar Series. Speaker and panelist for: A Blooming Problem: The Disruptive Impacts of Climate Change on Nature's Calendar.

(Invited)

Wolkovich, E. M. & B. I. Cook. 2014. Historical phenological records & applications to global change ecology. European Geophysical Meeting (Invited)

Wolkovich, E. M., & M. D. Donahue. 2014. Climate change & coexistence: The role of temporal variability in structuring communities. American Society of Naturalists 2014 meeting.

Wolkovich, E. M., Cook, B. I. & T. J. Davies. 2013. The race for spring: Understanding the diversity of phenological responses. ClimTree. (Invited)

Wolkovich, E. M., Cleland, E. E., Davies, T. J., Schaefer, H., Cook, B. I., Travers, S., Willis, C. & C. Davis. 2012. Phenology & plant invasions: Do invaders occupy novel temporal niches? Ecological Society of America (ESA) annual meeting.

Wolkovich, E. M. & Forecasting Phenology working group. 2011-2012. Warming experiments underpredict plant phenological responses to climate change. Talks at American & European Geophysical Union's annual meetings.

Wolkovich, E. M., Cleland, E. E. 2010. Future questions in citizen science: Including phenology in community ecology theory. Invited talk at symposium at ESA annual meeting.

Wolkovich, E. M., Cleland, E. E. 2009. The phenology of plant invasions: How temporal niches assemble plant communities. Phenology 2010 (Dublin).

Wolkovich, E. M. 2008. Invasive annual grasses enhance native shrubs and their arthropod communities through abiotic soil effects. ESA annual meeting. *Won Buell award for best student talk.

## Invited Talks & Panels

2024: E3B seminar series (Zurich), University of Kentucky Department of Biology Ribble Endowment Seminar, Harvard University: Vine to Mind: Decanting Wine's Future with Data Science & AI

*2023:* Séminaires d'Écologie et d'Évolution de Montpellier (CEFE), Canadian Grapevine Certification Network, Dartmouth Cramer Seminar series

*2022:* Agriculture Canada R&D Seminar Series, BIOS 2, George Mason University (Statistics Department), Ohio State's Plant Science Symposium (Keynote), FACT-B French Ameri-Can Climate Talks: Biodiversity, Climate Change Symposium at ASEV National Conference, International Cool Climate Wine Symposium (Keynote for viticulture), Global change at the nexus of climate, biodiversity, and disease - Symposium speaker, BC Winegrape Council, University of Alcalá.

*2021:* Climate Adaptation & Inovation Seminar Series, HIFMB Symposium on Functional Marine Biodiversity, Stan Generable

*2020:* Invasives 2020 Forum (Invasive Species Council of BC); Northern Arizona University Ecoinformatics Seminar series; NOAA Northwest Fisheries Seminar Series; Napa County Farm Bureau Continuing Education Class Series (last three all remote)

*2019:* Simon Fraser University, Wine Business IQ (Napa), Wine Island Growers Asscociation Annual Meeting (Vancouver Island), Invasive Species Council of Metro Vancouver, ACARN Provincial Workshop 2019, (Kelowna, BC)

*2018:* Swiss Federal Research Institute WSL (Birmensdorf), Napa Vintage Report (California), University of North Carolina (Chapel Hill), Dartmouth Cramer Series, San Diego State University

*2017:* Jena Experiment (Germany), University of Toronto (Atwood Colloqium, Rising Star in Ecology)

*2016:* Columbia University (E3B), Montreal Botanical Garden, Wellesley College, Arnold Arboretum Botany

Blast (public).

*2015:* Rice University, Weatherhead Center for International Affairs, Arnold Arboretum Tree Mob (public).

*2014:* Brown University Open Science (panelist); Woods Hole Marine Biological Lab, University of Massachusetts, Boston; Acadia Science Symposium (public); California Academy of Sciences; Dartmouth; Arnold Arboretum Adult Education Series (public)

*2012-2013:* Simon Fraser University; University of Victoria

## University & Other Professional Service

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|---|---|
| Comité Scientifique et Technique Vassal Advisory Board (INRAE) | *2024 - onward* |
| Faculty of Forestry representative to Faculty of Science Council | *2025 - onward* |
| Guest editor for *PNAS* | *2025* |
| Special Issue Editor *for Philosophical Transations A* 'Workflow for Applied Data Analysis' with co-organizers and editos: Andrew Gelman, Ali Vehtari, Richard McElreath | *2025* |
| Faculty of Forestry Seed Grant Adjudication Committee (UBC) | *2025* |
| *F1000 Ecology & Global Change* Science Advisory Board | *2022- onward* |
| NCEAS Environmental Data Science Advisory Board | *2020 - onward* |
| *Climate Change Ecology* Science Advisory Board | *2021- onward* |
| Dryad Scientific Advisory Committee | *2020-2022* |
| Canadian Institute for Ecology & Evolution management board member | *2019 - onward* |
| Biodiversity Research Centre Postdoctoral Fellow Selection Committee Chair | *2022* |
| Killam Postdoctoral Fellow Selection Committee (UBC) | *2019, 2021, 2022* |
| WorkLearn Selection Committee (UBC) | *2022* |
| *Climate Change Ecology* Special Issue Editor | *2020-2021* |
| Stan (probabilistic programming language) non-profit board member | *2016 - 2019* |
| Graduate Committee member, Harvard University | *2014-2017* |
| Editorial Advisory Board member for *Global Change Biology* | *2014 - 2017* |
| Ecological Systems in the Anthropocene seminar series (HUCE) leader | *2015 - 2018* |
| Founder and organizer of Boston Stan (probabilistic programming language) meetup group | *2015 - 2017* |
| Linda Loring Nature Foundation Research Advisory Board member | *2015 - 2019* |
| Biodiversity Discussion Group organizer, University of British Columbia | *2012 - 2013* |
| Tri-University Ecology & Evolution Retreat organizer, University of British Columbia | *2012 - 2013* |
| Graduate student Journal Club organizer (and started club), Dartmouth | *January 2004 - 2008* |

Reviewer (12-16 papers/grants per year) for: *Agricultural & Forest Entomology, Agricultural & Forest Meterology, American Naturalist, Annals of Botany, Applied Vegetation Science, Austrian National Science Foundation, Biogeochemistry, Biological Invasions, Biological Reviews, Biosicence, Climate Research, Climatic Change, Current Biology, Diversity & Distributions, Ecological Applications, Ecology, Ecology Letters, eLife, Environmental Research, Functional Ecology, Global Change Biology, Harvard Data Science, Horticultural Research Intergovernmental Panel on Climate Change (IPCC): WG IV, International Journal of Biometeorology, International Journal of Climatology, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Ecology, Journal of Vegetation Science, Marine Ecology Progress Series, National Science Foundation, Nature, Nature Climate Change, Nature Ecology & Evolution, New Phytologist, Oecologia, Oikos, Philosophical Transactions of the Royal Society, Physiologia Plantarum, Proceedings of the National Academy, Proceedings of the Royal Society B-Biological Sciences, Science, Scientific Data, Scientific Reports, Soil Biology & Biogeochemistry, Strategic Environmental Research and Development Program, Swiss National Science Foundation, Tree Physiology, Trends in Ecology & Evolution*

## Professional Activities & Affiliations

NCEAS Harnessing Diversity in Environmental Data Science Steering Committee 2021-*onward*

Symposium for Bayesian Modeling at UBC, 8 international speakers from academia, industry and non-profit organizations *2024*

NIMBioS Investigative Workshop - Transients in Biological Systems *2019*

StanCon 2018 - conference organizer *2018*

StanCon 2017 - conference organizer *2017*

15 Years of the Jena Experiment: The Past, Present and Future *2017*
Invited speaker for symposium and working group participant

National Center for Ecological Analysis & Synthesis working group participant *2013*
Working group title: ABI Development: A toolbox for analysis of long-term ecological dynamics

USA National Phenology Network RCN participant *2009 - 2013*

Nutrient Network RCN participant (global collaborative experiment) *2007 - 2011*
Site Organizer for Etna, New Hampshire site, with K. L. Cottingham

American Geophysical Union 2011 fall meeting session: Beyond Earlier Spring: Diverse Phenological Responses to Climate Across Species and Ecosystems, co-organizer with B. I. Cook *December 2011*

Cyberinfrastucture for Collaborative Science, workshop participant *May 2011*

National Center for Ecological Analysis & Synthesis working group participant *Fall 2008*
Working group title: Detritus and dynamics of populations, food webs and communities

NCEAS 'Trophic structure across ecosystems' working group participant *Fall 2005 - Fall 2008*
Working group title: Trophic structure across ecosystems

Society Memberships: American Geophysical Union, American Society of Naturalists, Ecological Society of America.

## Selected Published Data

*All lab data are public and we work to make all data we use publicly available, following our lab Data Management Plan (tinyurl.com/tempecodmp), which itself has been widely re-used. All data on Knowledge Network for Biocomplexity (http://knb.ecoinformatics.org/) unless otherwise noted.

23. Buonaiuto, D. M. & E. M. Wolkovich. 2023. Germination phenology and seedling competition between two forest herb species of the eastern United States in controlled environments. Knowledge Network for Biocomplexity. doi:10.5063/F1ZG6QPW.

22. Buonaiuto, D. & E. M. Wolkovich. 2021. Environmental drivers of flower-leaf sequences variation in temperate woody plants. (doi:10.5063/PG1Q4B)

21. Eyster, H. N. & E. M. Wolkovich. 2021. Comparisons in the native and introduced ranges reveal little evidence of climatic adaptation in germination traits. OSF: Open Science Foundation (doi:10.17605/OSF.IO/DNGHW)

20. Karouba, H & E. M. Wolkovich. 2020. Disconnects between ecological theory and data in phenological mismatch research. Dryad (doi.org/10.5061/dryad.7pvmcvdpz)

19. Chamberlain, C. & E. M. Wolkovich. Phenology and growth data across eight temperate tree and shrub species exposed to late spring freezes coupled with warming winters. (doi:10.5063/F47MJ4)

18. Chamberlain, C. 2020. False spring risk of six European temperate trees from 1950-2016. (doi:10.5063/JW8C90)

17. D Buonaiuto. 2020. Reconciling competing hypotheses regarding flower–leaf sequences in temperate

forests for fundamental and global change biology. (urn:uuid:aeb60b75-f276-4af5-b7d6-39ae3cba33d2)

16. Merrill, N. & E. M.Wolkovich. 2019. Budburst and leafout phenology of 50 varieties of winegrapes (*Vitis vinifera* subsp. *vinifera*) in greenhouse with heat tolerance of flowering study. (doi:10.5063/F1TM78HS)

15. Wolkovich, E. M., A. Ettinger, D. Flynn, T. Savas, C. Chamberlain, et al. 2019. Observed Spring Phenology Responses in Experimental Environments (OSPREE). (doi:10.5063/F1CZ35KB)

14. Wolkovich, E. M. 2020. Vintage wine quality ratings for Burgundy and Bordeaux. (urn:uuid:745954a5-8618-4ff7-97cf-ee6573443b02)

13. Ignacio Morales-Castilla, Marta Fernández-Pastor, & Wolkovich, E.M.. 2019. Winegrowing Regions of the World 2007. (doi:10.5063/F1SX6BH1)

12. Flynn, D. F. B. and E M. Wolkovich. 2019. Leaf and Flower Phenology of Woody Plant Species (HF314 at Harvard Forest Data Archive)

11. A. Ettinger & E. Wolkovich. 2018. MicroClimate from Climate Change Experiments. (doi:10.5063/F1QV3JQR)

10. Savas, T. D. F. B. Flynn, and E M. Wolkovich. A standardized photographic guide to woody plant spring phenology (doi: doi:10.5063/F1M906MP)

9. Gee, S, A. Ettinger & E. Wolkovich. Phenological sequences: a dataset of tree phenology from 25 species throughout one growing season (doi:10.5063/F19K48BD)

8. Wolkovich E. Variety phenology (doi:10.5063/F1RF5S05)

7. Wolkovich E. Flowering phenology of native and exotic species across five sites (wolkovich.41.6)

6. Wolkovich E. Mikesell phenological data from Wauseon, Ohio, USA, 1883-1912 (wolkovich.33.3)

5. National Center for Ecological Analysis and Synthesis and Wolkovich E. 2012. NECTAR: Network of Ecological and Climatological Timings Across Regions (nceas.988.17)

4. Wolkovich E. 2012. STONE: Synthesis of Timings Observed in iNcrease Experiments (doi:10.5063/AA/nceas.982.3)

3. National Center for Ecological Analysis and Synthesis , NCEAS 12574: Cook: Forecasting phenology: Integrating ecology, climatology, and phylogeny to understand plant responses to climate change, and Wolkovich E. Phenology Literature Review (doi:10.5063/AA/wolkovich.24.7)

2. Wolkovich E. Non-native grass litter manipulation, San Diego, CA USA 2005-2007 (doi:10.5063/AA/wolkovich.3.16)

1. Wilson EE, Wolkovich EM (2011) Data from: Scavenging: how carnivores and carrion structure communities. Dryad Digital Repository. doi:10.5061/dryad.8612 (http://datadryad.org/)

## Selected Outreach

**International Cherry Blossom Prediction Competition** *2022 - onward*

Open competition to predict date of cherry blossoms in four cities across the globe based on all public cherry blossom data, developed with J. Auerbach & D. Kepplinger (Statistics, George Mason University)

**Tree Spotters** citizen science group - USA National Phenology Network *2016 - onward*

Developed and led new group for the USA National Phenology Network on widespread woody tree species and focused at the Arnold Arboretum. Awarded USA-NPN's 2021 PhenoChampion.

**Expert for media on climate change**

Over a dozen interviews most years on my own research or current issues in climate change. A selected list is available at https://stateofwine.org/our-work/media/