

KRISTINA STINSON

kstinson@eco.umass.edu

<https://sites.google.com/umass.edu/stinsonlab/home>

Degrees:

1998	Ph.D.	Princeton University, Ecology & Evolutionary Biology
1992	B.A.	Natural Science and Mathematics, Bennington College
1992	B.A.	Literature & Languages, Bennington College

UMass Employment:

2012-present, Assistant Professor

RESEARCH

Areas of specialization: plant ecology, global change, restoration ecology

Research Description:

I am interested in the ecological responses of plants to environmental stresses. My work addresses:

- 1) Pollen production by the allergenic plant, *Ambrosia artemisiifolia*, under future climate scenarios. This work combines population biology with air sampling and molecular analysis of pollen to create allergy “hotspot” maps for New England;
- 2) Ecosystem restoration after invasion by the toxic nonnative plant, *Alliaria petiolata*, under predicted scenarios of global change in Massachusetts. This study uses regional sampling and a large global change experiment to investigate rates of recovery in soil microbial and plant communities following invasive plant eradication.
- 3) Effects of climate on the ecology and culture of Sugar Maple. This work uses field data on sap quality and quantity modeled as a function of climate across the full distributional range of *Acer saccharum*.

Current student research projects

Laura Hancock	2014-present	Long term monitoring of garlic mustard demography.
Erin Coates-Connor	2016-present	Effectiveness of garlic mustard eradication strategies.
Adam Trautwig	2016-present	Effects of invasive mustards on high altitude soil biota.
Elsa Cousins	2016-present	Ecotypic variation in the invasive plant, <i>Thlaspi arvense</i> .
Chloe Thompson	2018-present	Seed bank response to garlic mustard eradications.
Michelle Jackson	2018-present	Effects of climate change on garlic mustard physiology.

Grants received (since 2013):

2015-2018	Co-PI and Project Lead: Northeast Climate Science Adaptation Center. “Climate effects on the culture and ecology of sugar maple” (with T. Morelli [Co-PI]), USGS G15AC00479 \$148,867.
2013-2019	Co-PI and Project Lead: Strategic Environmental Research and Development Program. “Restoration of soil microbial function - mediating biological invasions in a global change context” (with S.D. Frey [Co-PI]), SERDP RC-2326, \$1,969,234.

Refereed Journal Articles (since 2013):

- Case, M. and **Stinson, K.A.** (2018). Climate change impacts on the distribution of the allergenic plant, common ragweed (*Ambrosia artemisiifolia*) in eastern United States. PLoS One <https://doi.org/10.1371/journal.pone.0205677>.
- Urbanowicz, C.*, Pasquerella, V., and **Stinson, K.A.** (2018). Differences in landscape drivers of garlic mustard invasion within and across ecoregions. Biological Invasions <https://doi.org/10.1007/s10530-018-1896-8>.
- Urbanowicz, C.*, Hutyra, L., and **Stinson, K.A.** (2018). The effects of urbanization and land use on ragweed distribution. Ecosphere <https://doi.org/10.1002/ecs2.2512>.

- Stinson, K.A.**, Frey, S.D., *Jackson, M.R., Coates-Connor, E., Anthony, M.A., and Martinez, K.* (2018). Responses of non-native earthworms to experimental eradication of garlic mustard, and implications for native vegetation. *Ecosphere* 9: 10.1007/ecs2.2353.
- Haines, D.F., Ayhward, J.A., Frey, S.D., and Stinson, K.A.* (2018). Regional patterns of floristic diversity and composition in forests invaded by garlic mustard (*Alliaria petiolata*). *Northeastern Naturalist* 25: 399-417.
- Bradley, B.A., Allen, J.M., O'Neill, M.W., Wallace, R.D., Barger, C.T., Richburg, J.A., and **Stinson, K.A.** (2018). Invasive species risk assessments need more consistent spatial abundance data. *Ecosphere* 9: 10.1002/ecs2.2302.
- Stinson, K.A.**, *Wheeler, J.A., Record, S., and Jennings, J.L.* (2018). Regional variation in timing, duration, and production of flowers by allergenic ragweed. *Plant Ecology*: 10.1007/s11258-018-0860-0.
- Stinson, K.A.**, *Albertine, J. M., Seidler, T.G., and Rogers, C.A.* (2017). Elevated CO₂ boosts reproduction and alters selection in northern but not southern ecotypes of allergenic ragweed. *American Journal of Botany* 104: 1313-1322.
- Wheeler, J.A., Frey, S.D. and Stinson, K.A.* (2017). Tree seedling responses to multiple environmental stresses: Interactive effects of soil warming, nitrogen fertilization, and plant invasion. *Forest Ecology and Management* 403: 44-51.
- Anthony, M.A., Frey, S.D., and **Stinson, K.A.** (2017). Fungal community homogenization, shift in dominant trophic guild, and appearance of novel taxa with biotic invasion. *Ecosphere* 8: e01951.
- Wheeler, J.A., Gonzalez, N.M., and Stinson, K.A.* (2016). Red hot maples: *Acer rubrum* phenology, growth and biomass allocation under climate warming. *Canadian Journal of Forest Research* 47(2): 159-165.
- Stinson, K. A.**, *Albertine, J. M., Hancock, L.M.S., Seidler, T.G., Rogers, C.A.* (2016). Northern ragweed ecotypes flower earlier and longer in response to elevated CO₂: What are you sneezing at? *Oecologia* 182: 587–594.
- Stinson, K.A.**, and Seidler, T.G. (2014). Physiological constraints on the spread of *Alliaria petiolata* populations in Massachusetts. *Ecosphere* 5: art96.
- Albertine, J.A., Manning, W.J., Muilenburg, M.L., Stinson, K.A., and Rogers, C.A.* (2014). Projected carbon dioxide to increase grass pollen and allergen exposure despite higher ozone levels. *PLoS One* 9: e111712.

TEACHING

UMass Teaching and Evaluations (2013-present, average SRTI Score 4.5/5):

NRC 212

ENVISCI 214

NRC 597PE

NRC 566

SERVICE

UMass highlights

2014-present Graduate Concentration Coordinator, Forest Resources & Arboriculture

2015-present Undergraduate Concentration Coordinator, Forest Ecology & Conservation

2013-present Mentor, Environmental Conservation, Graduate Mentoring Program

2013-present Committee on Women in Environmental Conservation (WinE)

Non-UMass highlights

Associate Editor, *American Journal of Botany* 2005-present

Member, Ecological Society of America, Professional Ethics Committee