Jane Molofsky

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EDUCATION

1993	Ph.D.	Botany	Duke University	Durham, NC
1988	M.S.	Plant Biology	Univ. of Illinois	Urbana, IL
1983	B.S.	Biology	Cornell Univ.	Ithaca, NY

PROFESSIONAL EXPERIENCE

Year	Experience	Location
2008-present	Professor	Univ. Vermont, Dept. Plant Biology
2001-present	Associate Professor	Univ. Vermont, Dept. Plant Biology
1995-2001	Assistant Professor	Univ. Vermont, Dept. Botany
1993-1995	Visiting Research Fellow	Princeton University

ADDITIONAL TRAINING

Year	Experience	Location
2024	Visiting Scholar	Andong National University, Andong, South Korea
2019	Participant	Lake Como Complex Systems Summer School
2011	Visiting Scientist	Center for Invasion Biology, University of Stellenbosch, Stellenbosch, South Africa
2007	Participant	New Kind of Science Summer School run by Wolfram Associates Burlington, Vermont
2003	Visiting Scientist	University of Montpellier, Montpellier, France

PROFESSIONAL AWARDS
Fulbright Scholar-Research Award
National Science Foundation Post-Doctoral Fellow

Alexander Hollaender Distinguished Post-Doctoral Fellowship Dept. of Energy
American Association of University Women Dissertation Fellowship

EXTERNAL SUPPORT (last 7 years)

2023-2026 National Institute of Food and Agricultural Research $48960 (Principal Investigator)

2022-2025 NIFA Hatch Award $45,000

2019.National Institute of Mathematical Biosciences (NIMBIOS)workshop (approximate $10,000) Postponed and then cancelled because of Covid

2018-2021. ***Centaurea*** **moncktonii:** Is an invasion on the horizon in Vermont? Hatch ($45,000 for 3 years)

2017-2023 NIFA: Understanding the role of admixture and population dynamics on the invasion of the *Centaurea* hybrid complex. $240,000.

2015-2018 The role of hybridization in the emergence of new invasive weed: A case study with *Centaurea* sp complex in northeastern North America $45,000

2014-2017 NIFA Cooperative agreement. Understanding the role of population genetic structure and population dynamics in the invasion of knapweeds ($144,000 for three years).

2011-2014 USDA Hatch Eco-evolutionary dynamics of invasion in the invasive grass, *Phalaris arundinacea* $45,000

INVITED SYMPOSIA

2018 Boston University Theory in Biology Symposium Keynote Speaker, May 24-25th 2018, Boston University, Boston Mass

2016: Ninth European Conference on Invasions. Invited talk. Luxembourg September 2016

2015Ecology and Management of Alien Plant Invasions: Organizer of symposium on genomics and invasion. September 2015 Waikoloa, Hawaii

2014American Genetics Association Conference Evolution and Plasticity with student Kattia Palacio-Lopez Seattle Washington, June 2014

2014.European Plant Sciences Organization (EPSO) Symposium on Biological Invasions, Dublin,

Ireland June 24-June 26th, 2014

2013 EU sponsored symposium: Adapting to climate change in a Mediterranean hotspot, Ecogenes, Sept. 2013, Sevilla, Spain.

2013.Ecology and Management of Alien Plant Invasions. Pirenopolis, Brazil, September 2013

2012.NEOBIOTA 2012 Seventh European Conference on Invasions. Sep 12-14, Pontevedra, Spain.

2010 NEOBIOTA 2010 Biological Invasions in a Changing World, Sept 14-18, 2010,University of Copenhagen; Copenhagen Switzerland

INVITED WORKSHOPS

EU workshop. Adapting to climate change, Sevilla, Spain, Sept 2013.
EU workshop on Frequency Dependent ecological interactions Ascona, Switzerland, March 2009

WORKSHOP ORGANIZER

How to invade a network, University of Vermont, August 2019 brought researchers from South Africa, Italy, Canada and the University of Vermont to workshop on complex networks applied to ecology. Workshop produced one paper so far (Hui et al. 2020).

Genomes and Invasion, Waikoloa, Hawaii Sept 2015.Organized a symposium at the Ecology and Management of Alien Species meeting bringing together researchers from South Africa, Canada, Brazil and the United States

A functional trait-based approach to invasion, University of Vermont Sept 2015. Organized a workshop that brought together researchers from South Africa, Czech Republic and the University of Vermont. Workshop resulted in paper in Nature Communications (Divisek et al. 2018).

PUBLICATIONS:

Manuscripts:

Palacio-Lopez, K., M. O'Neil and J. Molofsky 2024. Phenotypic integration moderates the response to temperature changes in *Arabidopsis thaliana.* To be submitted to Functional Ecology June 2024.

Submitted:

Molofsky, J and K. Palacio-Lopez. 2024. From genes to ecosystems: how genetic changes post-invasion

leads to regime shifts. Invited book chapter on the genetics of invasive species. To be published in a series on the environment for CABI Center for Agriculture and Biological Sciences International (Submitted May 2024)

Jan Divíšek[1,2], Petr Pyšek[3,4], David M. Richardson[3,5], Nicholas J. Gotelli[6], Brian Beckage[7], Jane Molofsky[7], Zdeňka Lososová[1] & Milan Chytrý[1] Invasive species integrate at the periphery of the functional trait space in local plant communities. Ecology Letters Submitted February 2025

Published

56. Kaproth, M. A., Eppinga, M. B., & Molofsky, J. (2023). Evolutionary history and intraspecific competition mediate ballistic seed dispersal. *Functional Ecology*, 37, 1935–1947. doi.org/10.1111/1365-2435.14347.

55. Surasinghe, Sudam; Rodriguez, Marisabel; Meszaros, Victor; Molofsky, Jane; Almagro-Moreno, Salvador; and Ogbunugafor, Brandon (2023) "Pathogen Emergence As Complex Biological Invasion: Lessons From Dynamical Systems Modeling," Northeast Journal of Complex Systems (NEJCS) : Vol. 5 : No. 1 , Article 4. DOI: 10.22191/nejcs/vol5/iss1/4/

54. Molofsky J, Thom D, Keller SR, Milbrath LR (2023) Closely related invasive species may be controlled by the same demographic life stages. NeoBiota 82:189-207. https://doi.org/10.3897/neobiota.82.95127

53. Molofsky, J, Park D, Richardson DM, Keller SR, Beckage B, Mandel J, Boatwright J and Hui C. 2022. Optimal differentiation to the edge of trait space (EoTS). E*volutionary Ecology 36:743-752.* doi.org/10.1007/s10682-022-10192-7.

52. Palacio-Lopez, K., Molofsky, J. 2021. Phenotypic shifts following admixture in recombinant offspring of *Arabidopsis thaliana*. *Evol Ecol* **35,** 575–593https://doi.org/10.1007/s10682-021-10118-9

51. Braun, B., B. Taraktas, B.Beckage and J.Molofsky. 2020. Simulating phase transitions and control measures for network epidemics caused by infections with presymptomatic, asymptomatic and symptomatic stagesPLOSONEhttps://doi.org/10.1371/journal.pone.0238412

50. Cang Hui, David M. Richardson, Pietro Landi, Henintsoa O. Minoarivelo, Helen E. Roy, Guillaume Latombe, Xin Jing, Paul J. CaraDonna, Dominique Gravel, Brian Beckage, Jane Molofsky 2020. Trait positions for elevated invasiveness in adaptive ecological networks. *Neobiota in press.*

49.Kattge, Jens, Gerhard Bönisch, Sandra Díaz, Sandra Lavorel, Iain Colin Prentice, Paul Leadley, Susanne Tautenhahn, and. Molofsky et al. 2020. TRY Plant Trait Database : Enhanced Coverage and Open Access. *Global Change Biology* 26 :119–88.

48. Susanne Lachmuth, Jane Molofsky, Lindsey Milbrath, Jan Suda, Stephen R Keller 2019 Associations between genomic ancestry, genome size and capitula morphology in the invasive meadow

knapweed hybrid complex (*Centaurea* × *moncktonii*) in eastern North America *AoB PLANTS*, 11,plz055, https://doi.org/10.1093/aobpla/plz055
Editor's choice

47. Divíšek[2], M. Chytrý, B. Beckage, N.Gotelli, Zdeňka Lososová, P.Pyšek, D. Richardson & J. Molofsky[*] 2018. Similarity between introduced and native plant species facilitates establishment but differences enhance invasion success *Nature Communications* 9, https://doi.org/10.1038/s41467-018-06995-4

46.Palacio-Lopez, K. S. R. Keller and J. Molofsky 2017. Genomic admixture between locally adapted populations of *Arabidopsis thaliana* (Mouse ear cress): Evidence of optimal genetic outcrossing distance *Journal of Heredity*;109:38-46. doi: 10.1093/jhered/esx079.

45.Collins, A.R, B. Beckage, and J. Molofsky.2017 Small scale genotypic richness affects plant performance and phenotypic variance of the invasive grass, *Phalaris arundinacea* Journal of Plant Ecology *11:47-55., https://doi.org/10.1093/jpe/rtx056*

44.Palacio-Lopez,K, J.C. Preston and J. Molofsky 2017. High-temperature induced plasticity and its genetic pathway in wild ecotypes *of Arabidopsis thaliana International Journal of Plant Sciences178:680-688.* https://doi.org/10.1086/694081

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43.Molofsky, J. A.R Collins, E. Imbert, T. Bitinas, and S. Lavergne. 2017. Are invasive genotypes superior: An experimental approach using native and invasive genotypes of the invasive grass, *Phalaris arundinacea* Open Journal of Ecology DOI: 10.4236/oje.2017.72010

42.Palacio-Lopez,K. Beckage, B., Scheiner, S and Molofsky J, 2015. The ubiquity of phenotypic plasticity in plants: a synthesis Evolutionary Ecology 5:3889-3400.

41.Molofsky, J. and A.R. Collins. 2015. Invasive plants may adapt to climate change but native plants cannot Evolutionary Ecology Research 16: 505-516.

40.Visser, V. and J. Molofsky 2015. Ecological niche differentiation of polyploidization is not supported by environmental differences among species in a cosmopolitan grass genus American Journal of Botany 102:36-49 doi:10.3732/ajb.1400432.

Accompanying Highlight article Am. J. Bot. 102(1): 36, 2015 doi:10.3732/ajb.1400432

39.Molofsky, J. S. R. Keller, S. Lavergne, M.A. Kaproth and M. B. Eppinga. 2014. Human-aided admixture may fuel ecosystem transformation during biological invasions: theoretical and experimental evidence Evolutionary Ecology 4: 899-910.

38.Geartner, M. O. Biggs, M. te Beest, J.Molofsky, and D. R. Richardson. 2014. Invasive plants as drivers of regime shifts: Identifying high priority invaders that alter feedback relationships Diversity and Distributions 20:733-744.

37.Molofsky, J. C. Danforth and E.E. Crone.2014 Nutrient enrichment alters dynamics in experimental

plant populations. Population Ecology 56:97-107. DOI 10.1007/s10144-013-0392-3

36. Eppinga, M. B. and J. Molofsky 2013. Eco-evolutionary litter feedback as a driver of exotic plant invasion. Perspectives in Plant Ecology, Evolution and Systematics 15:20-31. .doi.org/10.1016/j.bbr.2011.03.031.

35.Kaproth, M. A.,M.B. Eppinga and J. Molofsky 2013. Leaf litter variation influences invasion dynamics in the invasive wetland grass *Phalaris arundinacea*. Biological Invasions1 DOI: 0.1007/s10530-013-0411-5

34.Eppinga, M.B. C. A. Pucko, M. Baudena, B. Beckage, and J. Molofsky.2013 A new method to infer vegetation boundary movement from ?snapshot? data. Ecography 36:622-635.

33.Collins, A.R. and Molofsky, J. 2012. From species coexistence to genotype coexistence: What can we learn from invasive plants. In: S. Jose (ed.), Invasive Plant Ecology. CRC Press.

32.Kühn, I., Kowarik, I., Kollmann, J., Starfinger, U., Bacher, S., Blackburn, T., Bustamante, R., Celesti-Grapow, L., Chytrý, M., Colautti, R. and Essl, F., 2011. Open minded and open access: introducing NeoBiota, a new peer-reviewed journal of biological invasions.

31.Calsbeek, B. S. Lavergne, M. Patel and J. Molofsky. 2011.Comparing the genetic architecture and potential response to selection of native and invasive populations of reed canarygrass. Evolutionary Applications 4:726-735. . DOI: 10.1111/j.1752-4571.2011.00195.

30. Eppinga M, M. A. Kaproth, A. R. Collins and J. Molofsky**.**2011. Litter feedbacks, evolutionary change and exotic plant invasion Journal of Ecology doi: 10.1111/j.1365-2745.2010.01781.x

29.Collins, R, E. Harte and J. Molofsky. 2010 Empirical estimates of frequency dependence in natural populations. Oecologia 164:959-969.

28.Lavergne, S., N.J. Muenke and J. Molofsky 2010. Genome size and the evolution of plant invasiveness.Annals of Botany 105:109-116.

27..Broderson, C., S. Lavergne, and J. Molofsky. 2008. Genetic variation in photosynthetic characteristics among invasive and native populations of reed canarygrass. *Biological Invasions10:*1317-1325.

26.Lavergne, S. and J. Molofsky. 2007. Increased genetic variation and evolutionary potential drive the success of an invasive grass..*Proceedings of the National Academy of Sciences 104*: 3883-3888.

25.Lavergne, S., and J. Molofsky.2006. Control strategies for the invasive reed canarygrass (*Phalaris arundinacea* L.) in North American wetlands: the need for an integrated management plan." *Natural Areas Journal* 26:208-214.

24.Eppstein, M. J, J. D. Bever, and J. Molofsky.2006. Spatio-temporal community dynamics induced by

frequency dependent interactions. *Ecological modelling* 197:133-147.

23.Molofsky, J. and J. B. Ferdy. 2005. Extinction dynamics in experimental metapopulations. *Proceedings of the National Academy of Sciences 102*: 3726-373.

22. Lavergne, S. and J. Molofsky. 2004. Reed canary grass (*Phalaris arundinacea* L.) as a biological model in the study of plant invasions. *Critical Reviews in Plant Sciences*. 23: 415-429.

21.Molofsky, J. and J. D. Bever. 2004. A new kind of ecology? *Bioscience. 54*: 440-446.

20.Ferdy, J.B. and J. Molofsky, 2002. Allee effect, spatial structure and species coexistence. *Journal of theoretical Biology*, *217:*.413-424.

19. Molofsky, J., Bever, J.D., Antonovics, J. and Newman, T.J., 2002. Negative frequency dependence and the importance of spatial scale. *Ecology* 83:21-27.

18.Gifford, A.LS, J.B. Ferdy, and J. Molofsky.2002.Genetic composition and morphological variation among populations of the invasive grass, Phalaris arundinacea. *Canadian Journal of Botany* 80: 779-785.

17.Shadel, W. P, and J. Molofsky. 2002 Habitat and population effects on the germination and early survival of the invasive weed, *Lythrum salicaria* L.(purple loosestrife). *Biological Invasions* 4: 413-423.

16.Molofsky, J. and J. D. Bever. 2002. A novel theory to explain species diversity in landscapes: positive frequency dependence and habitat suitability. *Proceedings of the Royal Society of London. 269*: 2389-2393.

15.Sakai, A.K., Allendorf, F.W., Holt, J.S., Lodge, D.M., Molofsky, J., With, K.A., Baughman, S., Cabin, R.J., Cohen, J.E., Ellstrand, N.C. and McCauley, D.E. 2001. The population biology of invasive species. *Annual review of ecology and systematics* 32: 305-332.

14.Molofsky, J., J. Bever, and J. Antonovics. 2001. Coexistence under positive frequency dependence. *Proceedings of Royal Society of London B 268*: 273-277.

13.Morrison, S.L., and J. Molofsky 2000.Environmental and genetic effects on the early survival and growth of the invasive grass *Phalaris arundinacea*. *Canadian Journal of Botany* 77:1447-1453.

12.Molofsky, J., J. Lanza, and E. E. Crone. 2000.Plant litter feedback and population dynamics in an annual plant, *Cardamine pensylvanica. Oecologia* 124: 522-528.

11.Crone, E. E., and J. Molofsky.1998. Message in a bottle? Utility and limitations of recent ecological bottle experiments." *Integrative Biology: Issues, News, and Reviews* 1:209-214.

10.Molofsky, J. 1999. The effect of nutrients and spacing on neighbor relations in *Cardamine pensylvanica Oikos*:506-514.

9.Molofsky, J., Durrett, R., Dushoff, J., Griffeath, D. and Levin, S., 1999. Local frequency dependence and global coexistence. *Theoretical population biology*, *55*:.270-282.

8.Molofsky, J., S. L. Morrison, and C. J. Goodnight. 1999. Genetic and environmental controls on the establishment of the invasive grass, *Phalaris arundincaea*. *Biological Invasions 1*:1-8.

7.Morrison, Shannon L., and Jane Molofsky.1998. Effects of genotypes, soil moisture, and competition on the growth of an invasive grass, *Phalaris arundinacea* (reed canary grass). *Canadian Journal of Botany* 76: 1939-1946.

6.Molofsky, J. (1994). Population dynamics and pattern formation in theoretical populations. *Ecology*, *75*:30-39.

5.Molofsky, J. and B. L. Fisher. 1993. Habitat and predation effects on seedling survival and growth in shade-tolerant tropical trees. *Ecology* 74:261-265.

4.Molofsky, J., and C. K. Augspurger.1992. The effect of leaf litter on early seedling establishment in a tropical forest *Ecology* 73: 68-77.

3.Molofsky, Jane, Charles AS Hall, and Norman Myers. 1986. *Comparison of tropical forest surveys*. No. DOE/NBB-0078

2.Molofsky, Jane, Eric S. Menges, Charles AS Hall, Thomas V. Armentano, and Kevin A. Ault. 1984. The effects of land use alteration on tropical carbon exchange." *Studies in Environmental Science* 25 (1984): 181-194.

1.Armentano, T.V., Menges, E.S., Molofsky, J. and Lawler, D.J., 1984. *Carbon exchange of organic soils ecosystems of the world* (No. HRI-Paper-No.-27). Butler Univ., Indianapolis, IN (USA). Holcomb Research Inst.

PRESENTATIONS: (last 7 years)

Society of Korean Ecology

Jan Divíšek[1,2], Milan Chytrý [1], Petr Pyšek[3,4], David M. Richardson[3,5] Brian Beckage[6], Nicholas J. Gotelli [7], Zdeňka Lososová [1] & Jane Molofsky[6] 2024. Functional trait differences between native and alien plant species in local communities. International Biogeographical Conference Prague, Czech Republic, January 7-11, 2024.

Molofsky J, Milbrath LM, Portlas Z, Buckley NJ, Palacio-Lopez K, Buckley TE and Keller SR. 2023. Evolution of invasiveness in a hybrid knapweed complex. Ecology and Management of Alien Plant Invasions (EMAPI), October 23-25, Pucon, Chile.

Molofsky J, Thom D, Keller SR, Milbrath LR 2022 Closely related invasive species may be controlled by the same demographic life stages International Weed Science Congress" Weed Science in a Climate of Change". Bangkok, Thailand, December 4-9, 2022.

Jan Divíšek[1,2], Milan Chytrý [1], Brian Beckage[3], Nicholas J. Gotelli [4], Zdeňka Lososová [1], Petr Pyšek[5,6], David M. Richardson[7] & Jane Molofsky[3] 2022.Do alien plants occupy the centre or periphery of the

functional trait space in local communities of different habitat types? NEOBIOTA TARTU, ESTONIA September 16-19.

Molofsky, J. 2019. How hybridization can lead to invasion. Evolutionary Demography University of Miami, Coral Gables, Florida January 10-12, 2019

Molofsky, J. J. Divisek, M. Chytry, D. Richardson, B. Beckage, P. Pysek and N.J. Gotelli. Functional trait differences between native and invasive species across six habitats in the Czech Republic. NEOBIOTA 2016. Vianden Luxembourg.

Keller, SR, Molofsky, J, Palacio-Lopez, K, Suda, J, Milbrath, LR. 2016 Genome size and invasiveness traits in the hybrid meadow knapweed complex (Centaurea x. monctonii) in eastern North America. Neobiota 2016 Vianden Luxembourg

Molofsky, J. and S. R. Keller. 2015.Genomic processes and invasion: intraspecific admixture and hybridization as substrates for evolutionary change.Ecology and Management of Alien Plant Invasions.Hawaii.

Kaproth M and J. Molofsky 2012. Variation in explosive seed dispersal: Comparing introduced populations to their native counterparts under competition Ecological Society of America Portland, Oregon August 5-10, 2012

Kaproth, M and J. Molofsky 2011 Investigating litter feedbacks Ecological Society of America, Austin, Texas, August 7-12, 2011

Eppinga M and J. Molofsky 2011. The ecology and evolution of reed canary grass, Ecological Society of America, Austin, Texas, August 7-12, 2011

Kaproth,M. and J. Molofsky 2010 Has a weedy lifestyle evolved? Comparing variation in life history traits between invasive populations compared to their native counterparts. Ecological Society of America Pittsburgh, PA, August 5-10, 2010

Eppinga, M., C. Pucko, B. Beckage, and J. Molofsky 2010. A new approach to infer vegetation boundary dynamics from snapshot data. Ecological Society of America, Pittsburgh, PA. August 5-10, 2010

INVITED SEMINARS (Last 10 years)
Kyoto University,Kyoto Japan
Andong University, Andong South Korea
Monash University, Sydney Australia
CSIRO Canberra, Canberra Australia
University of Stellenbosch, South Africa
University of Georgia, Athens, GA
Virginia Tech, Blacksburg, VA
University of Fribourg, Fribourg, Switzerland

University Joseph Fourier, Grenoble France
University of Georgia

SERVICE (last 5 years)

Department
Diversity, Equity and Inclusion Committee
Plant Biology representative to the Food Systems Center
Plant Biology representative to the ARS advisory committee

College
CALS Awards committee and DUR Committee
CALS curriculum committee 2017-2019
CALS Professional Standards committee 2012- 2015
Chair, Ecology search committee, Department of Plant Biology

University
University Diversity Committee
Professional Standards Committee
Undergraduate Affairs Committee

National /International

Outside dissertation member, University of Stellenbosch, South Africa
Outside dissertation member, National Institute of Technology, Oslo Norway
Outside dissertation member: University of British Columbia, Canada
Outside reviewer: Helmholtz Center, Halle, Germany

Associate Editor, Methods in Ecology and Evolution 2008-ongoing
Associate Editor, NEOBIOTA 2012-ongoing
Associate Editor, Biological Invasions 2008-2018

NSF Panel member Environmental Synthesis Center 2010, NSF Population Community Ecology Panelist 2021,NSF Preproposal panel member 2012, 2013, 2014

Reviewer for : American Naturalist, Proceedings of the National Academy of Sciences, Ecology, Ecological Monographs, American Journal of Botany, Ecology Letters
1997 - 2009 present Member of the Vermont Exotic Plant Pest Council which meets regularly to discuss invasive species in the state of Vermont.

Outreach
Youth Environmental Summit prepared presentation for Youth Environmental Summit
Taught elementary school students plant biology 2012, 2013, 2014.
Expert Panelist on Plant Invasions for the Vermont Stage Company production of Native Gardens 2017
Developed web-page of invasive plants and their native plant alternatives for the University of Vermont

Installed invasive plant garden and their native alternatives on the University of Vermont Campus

TEACHING AND ADVISING

Courses Taught

Non-major courses

The Green World, Honors seminar Global Change Biology, Honors seminar Plants on the move, Online summer course: Plants on the move

Major courses

Plant Ecology, Evolution, Ecology and Evolution Majors Course,Global Change Biology, Population Biology, Grant writing in Ecology and Evolutionary biology, Biological Invasions:from genes to ecosystems, Fundamentals of Theoretical Ecology, Evolutionary Ecology,

Research Supervision

51 undergraduate students,
8 graduate students (5 MS., 3 PhD)
4 Post-doctoral fellows