

Christine M. Palmer, Ph.D.

Associate Professor of Biology
Department of Natural Sciences
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Vermont State University, Castleton Campus
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EDUCATION

2011 Ph.D. Biology, Dartmouth College, Hanover, NH
2006 M.S. Cell and Molecular Biology, University of Pennsylvania, Philadelphia, PA
2002 B.A. Biology, Williams College, Williamstown, MA

PROFESSIONAL EXPERIENCE

Research:

2020-2021 Fulbright/NSF Arctic Scholar, Iceland
Research: *Investigation of Soil Biota for Improved Forest Establishment*

2020-present Associate Professor of Biology, Castleton University, Castleton VT

2014-2020 Assistant Professor of Biology, Castleton University, Castleton, VT

2011-2014 Postdoctoral Researcher, University of California, Davis, CA
Advisor: Dr. Julin Maloof
Research: *Quantitative genetics of shade avoidance in plants*

2013 Field Research Leader, White Mountain Research Station, White Mountains, CA.
GLORIA project, Global Observation Research Initiative in Alpine Environments
Research: *Climate change impacts on the ecology of high mountain plants*

2013 Field Researcher, U.S. Forest Service
Investigator: Dr. Malcolm North
Research: *Effect of fire on forest understory herb and shrub communities*

2006-2011 Graduate Student, Dartmouth College, Hanover, NH
Advisor: Dr. Mary Lou Guerinot
Ph.D. Thesis: *Regulation of the iron deficiency response in Arabidopsis*

2003-2006 Graduate Student, University of Pennsylvania, Philadelphia, PA
Advisor: Dr. Mitchell Lazar
M.S. Thesis: *A novel interaction between the mammalian corepressor SMRT and the DNA-dependent protein kinase*

2002-2003 Research Assistant, Arizona State University, Tempe, AZ
Advisors: Dr. Stanley Faeth, Dr. Lokesh Joshi
Research: *Ecology of native bunchgrass and endophytic fungus*
Production of therapeutic compounds in Nicotiana sp.

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- 2001-2002 Undergraduate Honors Thesis, Williams College, Williamstown, MA
Advisor: Dr. Marta Laskowski
Thesis: *Characterization of an auxin-induced F-box protein in Arabidopsis*
- 2000-2001 Undergraduate Research, Williams College, Williamstown, MA
Advisor: Dr. Joan Edwards
Research: *Impact of the invasive species Alliaria petiolata on native plants*
Influence of self- and cross-fertilization on pollen tube development

Additional Professional Training:

- 2021 GIS, UVM Professional and Continuing Education
2019 Advanced Tree Climbing and Instruction Certification, Cornell Outdoor Ed
2019 T3 Train the Trainer, Bioinformatics in the classroom Certification, MDI-BL
2018 -present Wilderness First Responder
2018 Applied Bioinformatics, Environmental Genomics Certification, MDI-BL
2017-present Game of Logging Chainsaw Certification Levels 1-3
2015 Tree Climbing for Researchers Certification, Cornell Outdoor Ed

TEACHING

Primary Instructor:

Castleton University:

- BIO 1121: Biology 1*, 5 credits, Spring 2014, Fall 2015-present
BIO 1121L: Biology 1 Lab: 2 credits, Spring 2014, Fall 2015-present
BIO 1121 FYS: Biology 1 First Year Seminar and Lab: 2 credits, Fall 2016-2018
BIO 2010: Cell and Molecular Biology: 3 credits, Fall 2014, Spring 2016-present
BIO 2010L: Cell and Molecular Biology Lab: 2 credits, Fall 2014, Spring 2016-present
BIO 3065: Plant Ecology: 3 credits, Fall 2014-present
BIO 3065L: Plant Ecology Lab: 2 credits, Fall 2014-present
BIO 3070: Genetics: 4 credits, Spring 2015-2017
BIO 3350: Natural History of the Mojave Desert: 2 credits, Spring 2015, 2017, 2019
BIO 4035: Advanced Molecular Biology: 3 credits, Fall 2015, 2017
BIO 4035L: Advanced Molecular Biology Lab: 2 credits, Fall 2015, 2017
BIO 4810: Biology Internship: 1-2 credits, 2015-present
BIO 4930: Student Research: 1-4 credits, 2014-present
SCI 2710: Iceland: Life Among Fire and Ice: 4 credits, Spring 2018, 2020, 2022
SCI 2710: Mountain Ecology: 3 credits, Killington RHM Fall 2022-present

Guest Lecturer/Secondary Instructor:

Castleton University

- 2014-present INT 2010: Great Ideas: scientific method and climate change
EDU 2031: Disciplinary Literacies
BIO 1015: Plants and People

University of California, Davis

- 2012-2014 Plant Developmental Biology
Comparative Genomics
Techniques in Proteins

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Icelandic Forest Research

2021 Basic R: Data analysis, graphing, and statistics

Teaching Assistant:

Dartmouth College

2007 Genetics Supervisor: Dr. Patrick Dolph

University of Pennsylvania

2005 Genetics (Postbacc) Supervisor: Dr. Jean Labriola Scholz

Williams College

2000-2001 Genetics Supervisor: Dr. Marsha Altschuler
Ecology Supervisor: Dr. Joan Edwards

Graduate Student Mentoring:

2018-present Research Mentor University of Vermont
Biogeochemistry Lab Brittany Lancelloti and Kyle Dittmer

2008-2011 Research Mentor Dartmouth College
MCB Program Graduate: Maria Hindt and Jessica Weng

Undergraduate Student Research Mentoring:

Castleton University

2014-present Primary research advisor for:
Jennifer Morelli, Thomas Stockwell, Jessica Ralston, Nicole Wershoven, Emily Giddings, Amber Miller Clark, Angela Golding, Cassidy Yrsha, Kelsey Butler, Avery Cox, Devin Perry, Gustav Semanchik, Alexander Williams, Jacob Apjohn, Spencer Como

University of California, Davis

2013-2014 Plant Biology Megan Choi and Edna Chen
Young Scholar Program High School: Kisha Thayapran

Dartmouth College

2018-present Ayers Lab Corinne Vietorisz
2008-2011 Women in Science Tara Henn
Presidential Scholars Zieanna Chang and Adi Rattner
Honors Program Ilda Bajraktari
SURF Program Sean Beckwith (Carleton College)

High School Research and Science Mentoring:

2013-2014 Science Mentor Da Vinci Charter Academy
Environmental Science High school students

2013-2014 Mentor Center for Land Based Learning-SLEWS
Habitat restoration Multiple local high schools

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2012-2014	Instructor Methods in DNA	Pioneer High School, Woodland, CA AP Biology high school students
2012-present	Science Mentor Master Plant Science Team	American Society of Plant Biologists Various high schools nationwide (online)

Additional Teacher Training

2012-2013	Professors For The Future Training, University of California, Davis
2012	Seminar on College Teaching Course, University of California, Davis
2009	Teacher Training Workshop Series, Dartmouth College

AWARDS AND HONORS

2022	Castleton Advanced Study Grant: LiCOR, \$1,450
2021	Vermont Biomedical Research Grant, \$6,905
2020-2021	Fulbright-NSF Arctic Scholar Award: Iceland, \$32,000
2020	Castleton Sabbatical Grant, \$2,500
2019	Vermont Genetics Network Pilot Grant, \$25,000
2016, 2019	Castleton Advanced Study Grant: Iceland, \$1,000, \$1,336
2018	Vermont Genetics Network Project Grant, \$75,000
2018	Vermont Genetics Network Small Grant, \$15,000
2017	American Society for Plant Biologists Travel Grant, \$500
2017	American Society for Plant Biologists PUI Faculty Grant, \$420
2017	Vermont Genetics Network Pilot Grant, \$25,000
2015-2016	Vermont Genetics Network Pilot Grant, \$50,000
2016	Vermont Genetics Network Small Grant, \$5,000
2015	American Society for Plant Biologists Travel Grant, \$500
2014, 2015	Castleton Faculty Student Research Grant \$1,076, \$1,000
2014, 2016	Castleton Advanced Study Grant, \$4,750, \$1,311
2013	UC Davis Postdoctoral Scholars Association Travel Grant, \$500
2012	Professors For The Future Fellowship, University of California, \$3,000
2011	Sigma Xi Full Membership
2010	Dartmouth College Arts and Sciences Graduate Travel Award, \$1,000
2007-2009	Ruth L. Kirschstein NRSA Biochemistry Training Grant T32-GM008704
2007-2010	Outstanding Graduate Student Teacher Award, Dartmouth College (3 awards)
2006-2007	GAANN Fellowship, U.S. Department of Education
2005-2006	Ruth L. Kirschstein NRSA Genetics Training Grant T32-GM07229
2003-2005	Cell and Molecular Biology Training Grant, University of Pennsylvania
2002	Sigma Xi Associate Membership
2001	Nathaniel Lawrence Travel Fellowship, Williams College, \$2,000
2000	Howard Hughes Medical Institute Undergraduate Research Fellowship

PEER-REVIEWED PUBLICATIONS

Palmer CM, Wershoven NL*, Martinson SJ, ter Hofstede HM, Kress WJ, Symes LB. 2022. Patterns of Herbivory in Neotropical Forest Katydid as Revealed by DNA Barcoding of Digestive Tract Contents. *Diversity*. 14(2):152. PMID: 35369669

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Ta J, **Palmer C**, Brock M, Rubin M, Weinig C, Maloof J, Runcie D. 2020. Multiple loci control variation in plasticity to foliar shade throughout development in *Arabidopsis thaliana*. *G3* (Bethesda). 10(11):4103-4114. PMID: 32988993

Symes LB, Wershoven NL*, Hoeger LO, Ralston JS*, Martinson SJ, ter Hofstede HM, **Palmer CM**. 2019. Applying and refining DNA analysis to determine the identity of plant material extracted from the digestive tracts of katydids. *PeerJ*. May 3;7:e6808. PMID:31110919.

An N, Welch SM, Markelz RJC, Baker RL, **Palmer CM**, Ta J, Maloof JN, Weinig C. 2017. Quantifying time-series of leaf morphology using 2D and 3D photogrammetry methods for high-throughput plant phenotyping. *Computers and Electronics in Agriculture* 135: 222-232.

Müller-Moulé P, Nozue K, Pytlak ML, **Palmer CM**, Covington MF, Wallace AD, Harmer SL, Maloof JN. 2016. YUCCA auxin biosynthetic genes are required for Arabidopsis shade avoidance. *PeerJ*. Oct 13;4:e2574. PMID: 27761349

* Undergraduate author

An N, **Palmer CM**, Baker RL, Markelz RJC, Ta J, Covington MF, Maloof JN, Welch SM, Weinig C. 2016. Plant High-Throughput Phenotyping Using Photogrammetry and Imaging Techniques to Measure Leaf Length and Rosette Area. *Computers and Electronics in Agriculture*. 127:376-394.

Corwin JA, Copeland D, Feusier J, Subedy A, Eshbaugh R, **Palmer C**, Maloof J, Kliebenstein DJ. 2016. The Quantitative Basis of the Arabidopsis Innate Immune System to Endemic Pathogens Depends on Pathogen Genetics. *PLoS Genetics* 12(2):e1005789. PMID: 26866607

Palmer CM, Hindt MN, Schmidt H, Clemens S, Guerinot ML. 2013. MYB10 and MYB72 are required for growth under iron-limiting conditions. *PLoS Genetics* 9(11):e1003953. PMID: 24278034

Maloof JN, Nozue K, Mumbach MR*, **Palmer CM**. 2013. LeafJ: an ImageJ plugin for semi-automated leaf shape measurements. *Journal of Visualized Experiments* (71). PMID: 23380664

Palmer CM¹, Bush SM¹, Maloof JN. 2012. Phenotypic and developmental plasticity in plants. In: eLS 2012. John Wiley & Sons Ltd, Chichester. ¹co-first authors

Palmer CM, Guerinot ML. 2009. Facing the challenges of Cu, Fe and Zn homeostasis in plants. *Nature Chemical Biology* (5): 333-40. PMID: 19377460

Argyros RD, Mathews DE, Chiang YH, **Palmer CM**, Thibault DM*, Etheridge N, Argyros DA, Mason MG, Kieber JJ, Schaller GE. 2008. Type B response regulators of Arabidopsis play key roles in cytokinin signaling and plant development. *Plant Cell* (8): 2102-16. PMID: 18723577

Yu J, **Palmer C**, Alenghat T, Li Y, Kao G, Lazar MA. 2006. The corepressor silencing mediator for retinoid and thyroid hormone receptor facilitates cellular recovery from DNA double-strand breaks. *Cancer Research* (18): 9316-22. PMID: 16982777

INVITED TALKS

Palmer CM. Investigation of Soil Biota for Improved Forest Establishment. 2021. Iceland Fulbright Commission, Reykjavik, Iceland.

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Palmer CM. Investigating fungal communities in Icelandic soils. 2021. Iceland Forest Service Seminar, Mogilsa, Iceland.

Palmer CM. Dietary preferences of neotropical katydids: How to eat and not be eaten. 2019. New England College Snacking on Science Seminar, Henniker, NH.

Palmer CM. Molecular methods for characterizing mycorrhizal fungi. 2019. Long-Term Ecological Research Site Hubbard Brook Cooperator's Meeting, Hubbard Brook Experiment Forest, NH

Palmer CM. Gut sequencing strategies. 2019. Smithsonian Tropical Research Institute, Barro Colorado Island, Panama

Palmer CM. Dietary preferences of neotropical katydids. 2018. Trinity College Seminar Series, Hartford, CT.

Palmer CM. It isn't easy being green: plants and stress. 2017. Lyndon State Seminar Series.

Palmer CM. The genetics of shade avoidance. 2016. UVM Plant Seminar Series. Burlington, VT.

Palmer CM. Plants and the environment. 2015. Green Mountain Power Energy Series. Rutland, VT.

Palmer CM. GMOs in society. 2015. Science Pub Series. Castleton, VT.

Palmer CM. New perspectives on shade avoidance. 2014. International Plant and Animal Genome Conference. San Diego, CA.

CONFERENCE PRESENTATIONS

Palmer CM, Wershoven N*, Golding A*, Yrsha C*, Symes L, ter Hofstede H. Plant diet specialization in Neotropical forest katydids.

2017. North East Regional IDeA Conference (NERIC). Burlington, VT.

2017. American Society for Plant Biology National Conference. Honolulu, HI.

Palmer CM, Choi M*, Maloof JN. Identifying Causal Genes from Genome Wide Association Studies of Shade Avoidance in Plants. 2014. International Plant and Animal Genome Conference. San Diego, CA.

Palmer CM, Chao D, Salt DE, Guerinot ML. Natural genetic variation in selected populations of *Arabidopsis thaliana* is associated with differences in arsenic accumulation. 2010. Superfund Research Conference. Portland, OR.

Palmer CM, Guerinot ML. MYB10 and MYB72 are required for survival under iron deficiency. 2010. FASEB Conference: Trace Elements in Biology and Medicine. Snowmass, CO.

2009. Dartmouth Molecular and Cellular Biology Graduate Program Retreat. Whitefield, NH.

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Palmer CM, Lahner B, Salt DE, Guerinot ML. MYB10 and MYB72 play a redundant role in the iron deficiency response.

2008. Gordon Conference: Plant Molecular Biology. Holderness, NH.,

2008. Dartmouth Molecular and Cellular Biology Graduate Program Retreat. Whitefield, NH.

Yu J, **Palmer C**, Alenghat T, Li Y, Kao G, Lazar MA. The corepressor silencing mediator for retinoid and thyroid hormone receptor facilitates cellular recovery from DNA double-strand breaks. 2006.

Keystone Symposia: Nuclear Receptors. Banff, Alberta.

SERVICE

Castleton University Service:

2019-2022	Wildlife and Forest Conservation Major Coordinator
2019-present	Curriculum Committee Secretary
2014-present	Academic advisor (meet with 20-50 advisees individually 2-5 times/semester)
2014-present	Green Campus Working group (Committee chair 2017-2021)
2015-2021	EcoRep and Campus Recycling Coordinator
2017-2019	Advisor to Student Sustainability Club
2017	Geology Faculty Search Committee
2016-2019	First Year Seminar Steering Committee
2016, 2018	Exercise Science Faculty Search Committee
2015-2019	Admissions and Retention Committee (Secretary 2015-19, Chair 2017-18)
2014-2018	Advisor to Student Science Association

Invited Reviewer and Professional Societies

American Journal of Botany

American Society for Plant Biologists

Environmental Entomology

Microbial Ecology

Physiologia Plantarum

Scientific Reports

Sigma Xi

National Science Foundation (IOS Panelist)

Public outreach

Volunteer at Evening Song Organic Farm, Instructor for Castleton Summer Science Camp, Appalachian/Long Trail Maintenance Crew, Coverts Woodlands for Wildlife Cooperator, Game of Logging Chainsaw Training, Science advisor to Otter Valley High School, Volunteer with USFS in Sequoia National Park, Tree Climbing Certification