

CHARLES D. CANHAM

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Education

Ph.D. Ecology and Evolutionary Biology, Cornell University. 1984
M.S. Botany, University of Wisconsin (Madison). 1978
B.S. Botany, Montana State University. 1975.

Professional Positions

2021 - Senior Scientist Emeritus, Cary Institute of Ecosystem Studies
2004 - 2021 Senior Scientist, Cary Institute of Ecosystem Studies
1997 - 2004 Scientist, Institute of Ecosystem Studies
1991 - 1997 Associate Scientist, Institute of Ecosystem Studies
1985 - 1991 Assistant Scientist, Institute of Ecosystem Studies,
1990 - 2010 Adjunct Associate Professor, Ecology and Evolutionary Biology, University of
Connecticut, Storrs, CT
1984 - 1985 Postdoctoral Research Associate, Institute of Ecosystem Studies, New York
Botanical Garden, Millbrook, NY

Awards

1990 Foreign Specialist Fellowship, Science and Technology Agency, Japan
1997 Mercer Award, Ecological Society of America
2014 Honorary Doctorate, University of Quebec – Outaouais
2019 Distinguished Service Citation, Ecological Society of America

Selected Recent Professional Activities

Board of Governors and Secretary, Ecological Society of America (elected to 3-year term
beginning 2010, re-elected to a second term for 2013-2016)
Board of Editors, 2002 – 2006, *Frontiers in Ecology and Evolution*
Associate Editor, 2007 – 2018, *Journal of Ecology*
Board of Editors, 2018 – present, *Ecosphere*
Board of Trustees, 1996 - 2005, 2006 -2015, 2016 – 2020, Adirondack Chapter of The
Nature Conservancy
Board of Directors, 1996 – 2005, 2006 – 2015, 2016 - present, Adirondack Land Trust
Board of Directors, 2004 – 2013, 2014 – 2023, Adirondack Council
Board of Directors, 2004 – 2020, Great Mountain Forest Corporation
Board of Directors, 2012 – present, Northern Forest Atlas Foundation

Grants Active 2000 - 2022

LTREB: Pulsed resources and the dynamics of rodents, ticks, and Lyme-disease risk in oak forests. National Science Foundation. R. S. Ostfeld, C. D. Canham and F. Keesing (Co-PIs). 2000-2005. \$300,000.

LTRE Cross-Site: Models as tools for synthesis of the effects of hurricanes on temperate and tropical forests. National Science Foundation. C.D. Canham, N. Brokaw, N. Fetcher, J. Thompson, B. Haines. 2000 - 2003. \$299,901.

Regulation Of Tree Seed Survival And Seedling Establishment At Neighborhood And Patch Scales In Forest Mosaics. A. W. Mellon Foundation. R. S. Ostfeld and C. D. Canham. 2000 - 2001. \$41,159.

Landscape-Lake Linkages As Reflected In The Lability Of Dissolved Organic Carbon And Ecosystem Respiration. A. W. Mellon Foundation. M. L. Pace and C. D. Canham. 2000 - 2001. \$24,781.

Cary Conference IX - Understanding Ecosystems: The Role of Quantitative Models in Observation, Synthesis, and Prediction. National Science Foundation. C. D. Canham, J. S. Cole, and W. Lauenroth. 2001 - 2002. \$48,750

Cary Conference IX - Understanding Ecosystems: The Role of Quantitative Models in Observation, Synthesis, and Prediction. Environmental Protection Agency. C. D. Canham, J. S. Cole, and W. Lauenroth. 2000 - 2002. \$20,000.

Cary Conference IX - Understanding Ecosystems: The Role of Quantitative Models in Observation, Synthesis, and Prediction. U.S. Department of Energy. C. D. Canham, J. S. Cole, and W. Lauenroth. 2001 - 2002. \$30,000.

Cary Conference IX - Understanding Ecosystems: The Role of Quantitative Models in Observation, Synthesis, and Prediction. USDA Forest Service. C. D. Canham, J. S. Cole, and W. Lauenroth. 2001 - 2002. \$10,000.

Development and Calibration of SORTIE for the Boreal Forests of Canada. University of Quebec in Montreal. C. D. Canham. 1999-2003. \$60,000.

Invasion of northeastern forests by exotic tree species: Interactions between population dynamics and ecosystem processes. C. D. Canham and P. L. Marks. USDA – NRI. 2003 – 2006. \$250,000.

Spatially-explicit modeling of the dynamics of mixed beech podocarp forests of New Zealand. C. D. Canham (PI). Landcare Research, New Zealand. 2003 – 2004. \$60,000.

LTREB: Pulsed Resources and the Dynamics of Rodents, Ticks, and Lyme-Disease Risk in Oak Forests. R. S. Ostfeld, C. D. Canham and F. Keesing. 2005-2010. \$300,000

Development of SORTIE for boreal forests of Quebec. C. D. Canham. University of Quebec at Montreal. 2003 – 2007. \$86,493.

Natural Disturbance and Human Land-Use as Determinants of Tree Community Dynamics in a Subtropical Wet Forest. C. D. Canham and Maria Uriarte. National Science Foundation. 2005 – 2008. \$145,933.

- Does Managing For Mixtures Of Tree Species And Variation In Canopy Structure Result In Higher Sustained Yield In Northern Forests? C. D. Canham. Northeastern States Research Cooperative. 2006 – 2008. \$71,500.
- Fundamental versus Realized Niches of Forest Trees: Spatially-explicit Analyses of the Effects of Climate on Growth and Mortality in Northeastern Tree Species. C. D. Canham and M. J. Papaik. DOE National Institute for Climatic Change Research. 2006 – 2008. \$188,054.
- A Spatially-Explicit Watershed-Scale Analysis of Nutrient Loading to Adirondack Lake Ecosystems. C. D. Canham and M. L. Pace. National Science Foundation. 2007 – 2009. \$301,000
- Frontiers in Sustainability Science: Biofuels as a Critical Test. C. D. Canham, P. L. Groffman, M. L. Pace, and W. H. Schlesinger. National Science Foundation. 2007 – 2008. \$49,990
- Mechanisms Linking Host Biodiversity To Lyme Disease Risk. R.S. Ostfeld, C.D. Canham, F. Keesing, J. Brunner, M. Killilea. United States Environmental Protection Agency. 2008 – 2011. \$764,950.
- LTREB: Pulsed Resources and the Dynamics of Rodents, Ticks, and Lyme-Disease Risk in Oak Forests. R. S. Ostfeld, C. D. Canham and F. Keesing. National Science Foundation. 2010-2015. \$450,000.
- Potential Ecological and Economic Impacts of a Regional Outbreak of the Asian Longhorned Beetle. C. D. Canham. Subcontract from Pennsylvania State University. 2010 – 2011. \$68,770.
- Effects of Forest Biomass Energy Production on Northern Forest Wildlife and Forest Sustainability. T. Donovan (PI), C. D. Canham and T. Buchholz (Co-PIs). 2012 – 2015. \$129,810.
- Landscape Epidemiology and Integrated Management of Tick-Borne Diseases. R. S. Ostfeld (PI), C. D. Canham and F. Keesing (Co-PIs). Environmental Protection Agency. 2011-2012, \$299,998.
- Predicting the Cumulative and Ecological Impacts of Pests and Pathogens in the Forests of Eastern United States. C. D. Canham (PI) and S. LaDeau (Co-PI). Subcontract from Pennsylvania State University. 2012 – 2017. \$438,525.
- Disequilibrium and Transient Dynamics: Disentangling Responses to Climate Change versus Broader Anthropogenic Impacts on Eastern Forests. C. D. Canham (PI). National Science Foundation. 2013-2016. \$398,947.
- LTREB: Pulsed Resources and the Dynamics of Rodents, Ticks, and Lyme-Disease Risk in Oak Forests. R. S. Ostfeld (PI) and C. D. Canham and F. Keesing (Co-PIs). National Science Foundation. 2015-2020. \$450,000.

Synthesis of Net Carbon Impacts of Biomass Energy Development in the Northern Forest. C. D. Canham (PI) and T. Buchholz and J. S. Gunn (Co-PIs). Northeastern States Research Cooperative. 2016 – 2018. \$59,906.

Sporadic Seed Production in Mast Seeding Trees – Wasted Resources or Successful Strategy? G. Gratzner (PI), U. Nopp-Mayr, J. Szwagrzyk, and C. D. Canham (Co-PIs). FWF Austrian Science Fund. 2017 – 2020. 345,298 Euros.

Improving detection and prediction of spread rates from initial infestations of the Asian longhorned beetle (*Anoplophora glabripennis*). C. D. Canham (PI). USDA-APHIS. 2018-2020. \$157,379.

LTREB: Pulsed Resources and the Dynamics of Rodents, Ticks, and Lyme-Disease Risk in Oak Forests. R. S. Ostfeld (PI) and C. D. Canham and S. LaDeau (Co-PIs). National Science Foundation. 2020-2025. \$600,000.

Publications 2000 – 2022

Finzi A. C. and C. D. Canham. 2000. Sapling growth in response to light and nitrogen availability in a southern New England forest. *Forest Ecology and Management* 131:153-165

Frazer, G.W., Canham, C.D., Lertzman, K.P., 2000. Gap Light Analyzer (GLA), Version 2.0. *Technological Tools. Bulletin of the Ecological Society of America*, pp. 191–197.

Jenkins, J. C., C. D. Canham, and P. K. Barton. 2000. Predicting long-term forest development following hemlock mortality. pp. 62-75 in K. A. McManus, K. S. Shields, and D. R. Souto, eds., *Proceedings: Symposium on Sustainable Management of Hemlock Ecosystems in Eastern North America*. USDA Forest Service General Technical Report NE-267.

Knapp, L. B. and C. D. Canham. 2000. Invasion of old-growth forests by *Ailanthus altissima*: sapling growth and recruitment in canopy gaps. *Journal of the Torrey Botanical Society* 127:307-315.

LePage, P. T., C. D. Canham, K. D. Coates, and P. Bartemucci. 2000. Seed abundance versus substrate limitation of seedling recruitment in northern temperate forests of British Columbia. *Canadian Journal of Forest Research* 30:415-427.

Wright, E. F., C. D. Canham, and K. D. Coates. 2000. Effects of suppression and release on sapling growth for 11 tree species of northern, interior British Columbia. *Canadian Journal of Forest Research* 30:1571-1580.

Canham, C. D., Papaik, M. J., and Latty, E. F. 2001. Interspecific variation in susceptibility to windthrow as a function of tree size and storm severity for northern temperate tree species. *Canadian Journal of Forest Research* 31:1-10.

- Ostfeld, R. S., E. M. Schaubert, C. D. Canham, F. Keesing, C. G. Jones, and J. O. Wolff. 2001. Effects of acorn production and mouse abundance on abundance and *Borrelia burgdorferi* infection prevalence of nymphal *Ixodes scapularis* ticks. *Vector Borne and Zoonotic Diseases* 1:55-63.
- Dubé, P., M.-J. Fortin, C.D. Canham and D.J. Marceau. 2001. Quantifying gap dynamics and spatio-temporal structures in spatially-explicit models of temperate forest ecosystems. *Ecological Modelling* 142:39-60.
- Manson, R.H., R.S. Ostfeld, and C.D. Canham. 2001. Net effects of rodent herbivores on tree invasion dynamics along forest-field edges. *Ecology* 82:3320-3329.
- Beaudet, M., C. Messier, and C. D. Canham. 2002. Predictions of understory light conditions in northern hardwood forests following parameterization, sensitivity analysis, and tests of the SORTIE light model. *Forest Ecology and Management* 165(1-3):235-248.
- Bigelow, S. W. and C. D. Canham. 2002. Community organization of tree species along soil gradients in a northeastern USA forest. *Journal of Ecology* 90:188-200.
- Menard, A., P. Dube, A. Bouchard, C. D. Canham, and D. J. Marceau. 2002. Evaluating the potential of the SORTIE forest succession model for spatio-temporal analysis of small-scale disturbances. *Ecological Modelling* 153:81-96.
- Schnurr, J. L., R. S. Ostfeld, and C. D. Canham. 2002. Direct and indirect effects of masting on rodent populations and tree seed survival. *Oikos* 96:402-410.
- Tripler, C. E., C. D. Canham, R. S. Inouye, and J. L. Schnurr. 2002. Soil nitrogen availability, plant luxury consumption, and herbivory by white-tailed deer. *Oecologia* 133:517-524
- Uriarte, M, C. D. Canham, and R. B. Root. 2002. A model of simultaneous evolution of competitive ability and herbivore resistance in a perennial plant. *Ecology* 83:2649-2663.
- Canham, C. D., J. S. Cole, and W. K. Lauenroth (eds). 2003. *Models in Ecosystem Science*. Princeton University Press.
- Canham, C. D., J. S. Cole, and W. K. Lauenroth. 2003. The role of models in ecosystem science. pp 1-12 in Canham, C. D., J. S. Cole, and W. K. Lauenroth (eds.). *Models in Ecosystem Science*. Princeton University Press.
- Coates, K. D., C. D. Canham, M. Beaudet, D. L. Sachs, and C. Messier. 2003. Use of a spatially explicit individual-tree model (SORTIE/BC) to explore the implications of patchiness in structurally complex forests. *Forest Ecology and Management* 186:297-310.
- Latty, E. F., C. D. Canham, and P. L. Marks. 2003. Beech bark disease in northern hardwood forests: The importance of nitrogen dynamics and forest history for disease incidence. *Canadian Journal of Forest Research* 33:257-268.
- Canham, C. D. 2004. Neatness is not a virtue. pp. 20-24 in J. C. Purinton, (ed.) *Voices of the Land*. Chelsea Green Publishing, White River Junction, Vermont.

- Canham, C. D., P. T. LePage, and K. D. Coates. 2004. A neighborhood analysis of canopy tree competition: effects of shading versus crowding. *Canadian Journal of Forest Research* 34:778-787.
- Canham, C. D., M. L. Pace, M. J. Papaik, A. G. B. Primack, K. M. Roy, R. J. Maranger, R. P. Curran, and D. M. Spada. 2004. A spatially-explicit watershed-scale analysis of dissolved organic carbon in Adirondack lakes. *Ecological Applications* 14(3) 839-854.
- Gratzer, G., C. Canham, U. Dieckmann, A. Fischer, Y. Iwasa, R. Law, M. J. Lexer, H. Sandmann, T. Spies, B. Splechtna, and J. Szwagrzyk. 2004. Spatio-temporal development of forests – current trends in field studies and models. *Oikos* 107:3-15.
- Greene, D. F., C. D. Canham, K. D. Coates, and P. T. LePage. 2004. An evaluation of alternative dispersal functions for trees. *Journal of Ecology* 92:758-766.
- Latty, E. F., C. D. Canham, and P. L. Marks. 2004. The effects of land-use history on soil properties and nutrient dynamics in northern hardwood forests of the Adirondack Mountains. *Ecosystems* 7:193-207.
- Schnurr, J. L., C. D. Canham, R. S. Ostfeld, and R. S. Inouye. 2004. Neighborhood analyses of small mammal dynamics: Implications for seed predation and seedling establishment. *Ecology* 85:741-755.
- Uriarte, M., R. Condit, C. D. Canham, and S. P. Hubbell. 2004. A spatially explicit model of sapling growth in a tropical forest: does the identity of neighbours matter? *Journal of Ecology* 92:348-360.
- Uriarte, M., C. D. Canham, J. Thompson, and J. K. Zimmerman. 2004. A maximum-likelihood, neighborhood analysis of tree growth and survival in a tropical forest. *Ecological Monographs* 74:591-614.
- Papaik, M. J., C. D. Canham, E. F. Latty, and K. D. Woods. 2005. Effects of an introduced pathogen on resistance to natural disturbance: beech bark disease and windthrow. *Canadian Journal of Forest Research* 35:1832-1843.
- Coomes, D. A., R. B. Allen, W. A. Bentley, L. E. Burrows, C. D. Canham, L. Fagan, D. M. Forsyth, A. Gaxiola-Alcantar, R. L. Parfitt, W. A. Ruscoe, D. A. Wardle, D. J. Wilson, and E. F. Wright. 2005. The hare, the tortoise and the crocodile: the ecology of angiosperm dominance, conifer persistence and fern filtering. *Journal of Ecology* 93:918-935.
- Tripler, C. E., C. D. Canham, R. S. Inouye, and J. L. Schnurr. 2005. Competitive hierarchies of temperate tree species: Interactions between resource availability and white-tailed deer. *Ecoscience* 12:494-505.
- Uriarte, M., C. D. Canham, J. Thompson, J. K. Zimmerman, and N. Brokaw. 2005. Seedling recruitment in a hurricane-driven tropical forest: light limitation, density-dependence and the spatial distribution of parent trees. *Journal of Ecology* 93:291-304.
- Uriarte, M., S.P. Hubbell, R. John, R. Condit, and C.D. Canham. 2005. Neighborhood effects on sapling growth and survival in a neotropical forest and the ecological equivalence hypothesis. Pgs. 89-106 In: Burslem, D.F.R.P., Pinard, M.A. and Hartley, S.E., eds.

Biotic Interactions in the Tropics: their Role in the Maintenance of Species Diversity. Cambridge University Press. UK.

- Canham, C. D. and M. Uriarte. 2006. Analysis of neighborhood dynamics of forest ecosystems using likelihood methods and modeling. *Ecological Applications* 16:62-73.
- Canham, C. D., M. Papaik, M. Uriarte, W. McWilliams, J. C. Jenkins, and M. Twery. 2006. Neighborhood analyses of canopy tree competition along environmental gradients in New England forests. *Ecological Applications* 16:540-554.
- Gravel, D., C. D. Canham, M. Beaudet, and C. Messier. 2006. Reconciling niche and neutrality: the continuum hypothesis. *Ecology Letters* 9:399-409.
- Lovett, G. M., C. D. Canham, M. A. Arthur, K. C. Weathers, and R. D. Fitzhugh. 2006. Forest ecosystem responses to exotic pests and pathogens in eastern North America. *Bioscience* 56: 395-405.
- Maranger, R. C. D. Canham, M. L. Pace, and M. J. Papaik. 2006. A spatially explicit model of iron loading to lakes. *Limnology and Oceanography* 51:247-256.
- Ostfeld, R. S., C. D. Canham, K. Oggenfuss, R. J. Winchcombe, and F. Keesing. 2006. Climate, deer, rodents, and acorns as determinants of variation in Lyme-disease risk. *PLoS Biology* 4(6):e145.
- Papaik, M. J. and C. D. Canham. 2006. Species resistance and community response to wind disturbance regimes in northern temperate forests. *Journal of Ecology* 94:1011-1026.
- Bartemucci, P., C. Messier, and C. D. Canham. 2006. Overstory influences on light attenuation patterns and understory plant community diversity and composition in southern boreal forests of Quebec. *Canadian Journal of Forest Research* 36:2065-2079.
- Papaik, M. J., and C. D. Canham. 2006. Multi-model analysis of tree competition along environmental gradients in southern New England forests. *Ecological Applications* 16:1880-1892.
- Wilson, D. J., E. F. Wright, C. D. Canham, and W. A. Ruscoe. 2007. Neighbourhood analyses of tree seed predation by introduced rodents in a New Zealand temperate rainforest. *Ecography* 30:105-119.
- Bigelow, S. W. and C. D. Canham. 2007. Nutrient limitation of juvenile trees in a northern hardwood forest: Calcium and nitrate are preeminent. *Forest Ecology and Management*, 243:310-319.
- Gómez-Aparicio, L. and C. D. Canham. 2008. Neighborhood models of the effects of invasive tree species on ecosystem processes. *Ecological Monographs* 78:69-86.
- Gómez-Aparicio, L. and C. D. Canham. 2008. A neighborhood analysis of the allelopathic effects of the invasive tree *Ailanthus altissima* in temperate forests. *Journal of Ecology* 96:447-458.

- Gómez-Aparicio, L., C. D. Canham, and P. H. Martin. 2008. Neighborhood models of the effects of the invasive *Acer platanoides* on tree seedling dynamics: linking impacts on communities and ecosystems. *Journal of Ecology* 96:78-90.
- Busby, P. E., C. D. Canham, G. Motzkin, and D. R. Foster. 2009. Forest response to chronic hurricane disturbance in coastal New England. *Journal of Vegetation Science* 20:487-497.
- Canham, C. D. 2009. Adirondack upland forests. Contributed chapter for "The Great Experiment in Conservation: Voices from the Adirondack Park", edited by W. F. Porter, R. S. Whaley, and J. D. Erickson. Syracuse University Press.
- Canham, C. D. and M. L. Pace. 2009. A spatially-explicit, mass-balance analysis of watershed-scale controls on lake chemistry. Contributed chapter for "Real World Ecology: Large-Scale and Long-Term Case Studies and Methods", edited by S. Miao, M. Nungesser, and S. Carstenn. Springer-Verlag.
- Coates, K. D., C. D. Canham, and P. T. LePage. 2009. Above versus belowground competitive effects and responses of a guild of temperate tree species. *Journal of Ecology* 97:118-130.
- Comita, L. S., M. Uriarte, J. Thompson, I. Jonckheere, C. D. Canham, and J. K. Zimmerman. 2009. Abiotic and biotic drivers of seedling survival in a hurricane-impacted tropical forest. *Journal of Ecology* 97:1346-1359.
- Coomes, D. A., G. Kunstler, C. D. Canham, and E. Wright. 2009. A greater range of shade-tolerance niches in nutrient-rich forests: an explanation for positive richness-productivity relationships? *Journal of Ecology* 97:705-717.
- Kunstler, G., D. A. Coomes, and C. D. Canham. 2009. Size-dependence of growth and mortality influence the shade tolerance of trees in a lowland temperate rain forest. *Journal of Ecology* 97:685-695.
- Martin, P. H., C. D. Canham, and P. L. Marks. 2009. Why forests appear resistant to exotic plant invasions: intentional introductions, stand dynamics, and the role of shade tolerance. *Frontiers in Ecology and the Environment* 7:142-149.
- Uriarte, M., C. D. Canham, J. Thompson, J. K. Zimmerman, L. Murphy, A. M. Sabat, N. Fetcher, and B. L. Haines. 2009. Natural disturbance and human land use as determinants of tropical forest dynamics: results from a forest simulator. *Ecological Monographs* 79:423-443.
- Canham, C. D., J. Thompson, J. K. Zimmerman, and M. Uriarte. 2010. Variation in Susceptibility to Hurricane Damage as a Function of Storm Intensity in Puerto Rican Tree Species. *Biotropica* 42:87-94.
- Gravel, D., C. D. Canham, M. Beaudet, and C. Messier. 2010. Shade tolerance, canopy gaps and mechanisms of coexistence of forest trees. *Oikos* 119:475-484.
- Thomas, R. Q., C. D. Canham, K. C. Weathers, and C. L. Goodale. 2010. Increased tree carbon storage in response to nitrogen deposition in the US. *Nature Geoscience* 3:13-17.

- Bigelow, S. W. and C. D. Canham. 2010. Evidence that soil aluminum enforces site fidelity of southern New England forest trees. *Rhodora* 112:1-21.
- Canham, C. D. and R. Q. Thomas. 2010. Frequency, not relative abundance, of temperate tree species varies along climate gradients in eastern North America. *Ecology* 91:3433-3440.
- Canham, C. D., J. Thompson, J. K. Zimmerman, and M. Uriarte. 2010. Variation in Susceptibility to Hurricane Damage as a Function of Storm Intensity in Puerto Rican Tree Species. *Biotropica* 42:87-94.
- Comita, L. S., J. Thompson, M. Uriarte, I. Jonckheere, C. D. Canham, and J. K. Zimmerman. 2010. Interactive effects of land use history and natural disturbance on seedling dynamics in a subtropical forest. *Ecological Applications* 20:1270-1284.
- Gravel, D., C. D. Canham, M. Beaudet, and C. Messier. 2010. Shade tolerance, canopy gaps and mechanisms of coexistence of forest trees. *Oikos* 119:475-484.
- Katz, D. S. W., G. M. Lovett, C. D. Canham, and C. M. O'Reilly. 2010. Legacies of Land Use History Diminish Over 22 Years in a Forest in Southeastern New York. *The Journal of the Torrey Botanical Society* 137:236-251.
- Martin, P. H. and C. D. Canham. 2010. Dispersal and recruitment limitation in native versus exotic tree species: life-history strategies and Janzen-Connell effects. *Oikos* 119:807-824.
- Martin, P. H., C. D. Canham, and R. K. Kobe. 2010. Divergence from the growth-survival trade-off and extreme high growth rates drive patterns of exotic tree invasions in closed-canopy forests. *Journal of Ecology* 98:778-789.
- Thomas, R. Q., C. D. Canham, K. C. Weathers, and C. L. Goodale. 2010. Increased tree carbon storage in response to nitrogen deposition in the US. *Nature Geoscience* 3:13-17.
- Busby, P. E. and C. D. Canham. 2011. An exotic insect and pathogen disease complex reduces aboveground tree biomass in temperate forests of eastern North America. *Canadian Journal of Forest Research* 41, 2: 401-411
- Canham, C. D., M. L. Pace, K. C. Weathers, E. W. McNeil, B. L. Bedford, L. Murphy, and S. Quinn. 2012. Nitrogen deposition and lake nitrogen concentrations: a regional analysis of terrestrial controls and aquatic linkages. *Ecosphere* 3:art66. <http://dx.doi.org/10.1890/ES12-00090.1>
- Levine, C. R., R. J. Winchcombe, C. D. Canham, L. M. Christenson, and M. L. Ronsheim. 2012. Deer impacts on seed banks and saplings in eastern New York. *Northeastern Naturalist* 19:49-66.
- Schnurr, J. L., R. S. Ostfeld, and C. D. Canham. 2012. The influence of nearest seed neighbors on seed removal in deciduous forests. *Northeastern Naturalist* 19:43-48.
- Crowley, K. F., B. E. McNeil, G. M. Lovett, C. D. Canham, C. T. Driscoll, L. E. Rustad, E. Denny, R. A. Hallett, M. A. Arthur, et al. 2012. Do nutrient limitation patterns shift from nitrogen toward phosphorus with increasing nitrogen deposition across the northeastern United States? *Ecosystems* 15: 940-957.

- Canham, C. D. 2013. Carbon cycle implications of forest biomass energy production in the Northeastern United States. Pgs. 51-68 in Jacobson, M and D. Ciolkosz, eds. "Wood-Based Energy in the Northern Forests". Springer, New York.
- Canham, C. D., N. Rogers, and T. Buchholz. 2013. Regional variation in forest harvest regimes in the northeastern United States. *Ecological Applications* 23:515-522.
- Haeussler, S., C. D. Canham, and K. D. Coates. 2013. Complexity in temperate forest dynamics. Pgs. 60-78 in "Forests as Complex Adaptive Systems", edited by C. Messier, K. Puettmann, and K. D. Coates. Routledge, New York.
- Sheffer, E., C. D. Canham, J. Kigel, and A. Perevolotsky. 2013. Landscape-scale density dependent recruitment of oaks in planted forests: More is not always better. *Ecology* 94:1718-1728.
- Kunstler, G., R. B. Allen, D. A. Coomes, C. D. Canham, and E. F. Wright. 2013. Sustainable management, earthquake disturbances, and transient dynamics: modelling timber harvesting impacts in mixed-species forests. *Annals of Forest Science* 70:287-298.
- Liknes, G. C., R. S. Morin, and C. D. Canham. 2013. Trend analyses and projections using national forest inventory data. *Mathematical and Computational Forestry and Natural-Resource Sciences*. Vol. 5(2):112-114.
- Buchholz, T., S. Prisley, G. Marland, C. Canham, and N. Sampson. 2014. Uncertainty in projecting GHG emissions from bioenergy. *Nature Climate Change* 4: 1045 – 1047.
- Sheffer, E., J. Kigel, C. D. Canham, and A. Perevolotsky. 2014. Predicting the formation of a new upper canopy strata after colonization of native shrublands by pines. *Forest Science* 60(2):
- Canham, C. D. 2014. Disequilibrium and transient dynamics: Disentangling responses to climate change versus broader anthropogenic impacts on temperate forests of eastern North America. Pgs. 109-128 in D. A. Coomes, D. F. R. P. Burslem and W. D. Simonson, eds. "Forests and Global Change", Cambridge University Press.
- Canham, C. D., W. A. Ruscoe, E. F. Wright, and D. J. Wilson. 2014. Spatial and temporal variation in tree seed production and dispersal in a New Zealand temperate rainforest. *Ecosphere* 5(4):49. <http://dx.doi.org/10.1890/ES13-00384.1>
- Sheffer, E., C. D. Canham, J. Kigel and A. Perevolotsky. 2014. An integrative analysis of the dynamics of landscape and local-scale colonization of Mediterranean woodlands by *Pinus halepensis*. *PLoS ONE* 9(2): e90178. doi:10.1371/journal.pone.0090178
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Graduate Students Advised (1991 - present)

Co-Chair

- | | |
|----------------|--|
| Adrien Finzi | Univ. of Connecticut (Ph.D.) 1996 |
| Erika Latty | Cornell University (Ph.D.) 2000 |
| Liza Knapp | Bard College (M.S.) 1999 |
| Michael Papaik | University of Massachusetts (Ph.D.) 2004 |

Committee Member or Research Advisor

- | | |
|------------------|-------------------------------------|
| Lisa George | Harvard University (Ph.D.) 1996 |
| Jim Hill | Univ. of Connecticut (Ph.D.) 1996 |
| Richard Kobe | Univ. of Connecticut (Ph.D.) 1995 |
| Eric Ribbens | Univ. of Connecticut (Ph.D.) 1995 |
| Mike Stevens | Univ. of Vermont (M.S.) 1996 |
| John Casperson | Univ. of Connecticut (Ph.D.) 1998 |
| Jennifer Jenkins | Univ. of New Hampshire (Ph.D.) 1998 |
| Matthew Landis | Dartmouth University (Ph.D.) 1999 |
| Scott Meiners | Rutgers University (Ph.D.) 2000 |
| Mike Papaik | Bard College (M.S.) 1999 |
| Chris Tripler | Idaho State University (Ph.D.) 2001 |
| Maria Uriarte | Cornell University (Ph.D.) 2001 |
| Michael Booth | Yale University (Ph.D.) 2005 |

Paula Bartemucci	University of Quebec in Montreal (M.S.) 2002
Posy Busby	Harvard University (M.F.S) 2006
Dominique Gravel	Univ. Quebec in Montreal (Ph.D.) 2007
Meng-Hsueh Yu	Lehman College (PhD) 2011
Efrat Sheffer	Hebrew University, Israel. (Ph.D) 2012
Brian Clough	Rutgers University (PhD) 2013
Flora Krivak-Tetley	Dartmouth College (PhD) 2019
Michelle Brown	University of Vermont (PhD)

Postdoctoral Scholars Advised

- David Wood (1986-1988)
- Bertrand Boeken (1988-1990)
- Seth Bigelow (1997-2000)
- Maria Uriarte (2002 – 2005, as an NSF Minority Postdoctoral Fellow).
- Christopher Tripler (2002 – 2005, as an NSF Minority Postdoctoral Fellow).
- Patrick Martin (2003 – 2006, supported by a USDA-NRI grant).
- Lorena Gomez-Aparicio (2005 – 2007, supported by a Fullbright Fellowship).