

Curriculum Vitae

Oswald Joseph Schmitz
Oastler Professor of Population and Community Ecology

WORK ADDRESS Yale University, School of Forestry and Environmental Studies, 195 Prospect St.,
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DEGREES

1985-1989 Ph.D. University of Michigan, School of Natural Resources.
1983-1984 M.Sc. University of Guelph, Department of Zoology
1978-1982 B.Sc. University of Guelph, Department of Zoology

PROFESSIONAL POSITIONS

2011-present Director, Yale Institute for Biospheric Studies
2004-2009 Associate Dean for Academic Affairs, Yale University, School of Forestry and
Environmental Studies
2000-present Professor, Yale University, School of Forestry and Environmental Studies
2000-present Joint Professor, Yale University, Department of Ecology and Evolutionary Biology
(courtesy appointment subject to biannual re-approval)
1997-2000 Joint Associate Professor, Yale University, Department of Ecology and Evolutionary
Biology
1996-2000 Associate Professor with term, Yale University, School of Forestry and Environmental
Studies
1992-1996 Assistant Professor with term, Yale University, School of Forestry and Environmental
Studies
1990-1992 N.S.E.R.C. (Canada) Postdoctoral Fellow, Department of Zoology, University of British
Columbia
1988-1989 Rackham Predoctoral Fellow, School of Natural Resources, University of Michigan

FELLOWSHIPS/AWARDS/HONORS

2017 Keynote Speaker—University of Wisconsin Ecology Spring Symposium
2016 Riser Lecture—Northeastern University Marine Science Center
2015 Named Fellow of the Ecological Society of America
2015 Bronze Medal, the Federated Garden Clubs of Connecticut's highest honor awarded for 10
years of dedicated service teaching in the Federation's Environmental Studies School.
2014 Charles Jenner Memorial Lectureship— Curriculum for the Environment and Ecology,
University of North Carolina - Chapel Hill
2014 Class of 2014 Teaching Award for Professor Most Exemplifying Aldo Leopold's Land Ethic,
Yale School of Forestry and Environmental Studies
2011 Distinguished Ecologist Lecture Series—Michigan Tech University
2010 Biodiversity, Ecology and Global Change Lecture—Harvard University Center for the
Environment.
2009 Ledermann Lecture in Natural History and Conservation Biology—College of the
Environment and Life Sciences, University of Rhode Island
2006 Named the Oastler Professor of Population and Community Ecology, Yale School of Forestry
and Environmental Studies

- 2006 Elected Fellow of the AAAS (American Association for the Advancement of Science) for distinguished fundamental contributions towards understanding the emergence and maintenance of ecosystem structure and functioning and for relating ecosystem patterns to individual behaviors.
- 2005 The Walton Lecture Series—Mountain Lake Biological Station, Virginia, USA
- 1999 Class of 1999 Teaching Award, Yale School of Forestry and Environmental Studies
- 1994 Yale University Nominee, Packard Foundation Science Fellowship
- 1992 University Postdoctoral Fellowship, University of Calgary,
(Declined to accept position at Yale)
- 1990-1992 N.S.E.R.C. Postdoctoral Fellowship, University of British Columbia
- 1988-1989 Rackham Predoctoral Dissertation Fellowship, University of Michigan
- 1987 Rackham Research Fellowship, University of Michigan
- 1987 The Howard M. Wight Prize for Outstanding Qualities of Scholarship and Leadership, University of Michigan School of Natural Resources

BIOGRAPHICAL SKETCH

Oswald Schmitz is the Oastler Professor of Population and Community Ecology, in the Yale University School of Forestry and Environmental Studies. He studies the linkage between two important components of natural systems: biodiversity and ecosystem services. These issues are examined using field experimentation guided by formal mathematical theory of species interactions. Both theory development and field research is aimed at identifying functionally unique groupings of predators and herbivores. These insights are used to explain how predator and herbivore species determine the species composition and productivity of plants in ecosystems, and ensuing ecosystem processes such as nutrient and carbon cycling. Research also focuses on elucidating how important environmental disturbances, such as global climate change and natural resource exploitation, alter the nature and strength of species interactions in ecosystems and ensuing ecosystem services. The scientific insights aid efforts to conserve vital services that species in ecosystems provide to humankind. His research evaluates how to rethink conservation strategies by considering species as part of a natural portfolio. This portfolio represents a wealth of potential alternatives to contemporary technologically intensive and expensive approaches in environmental management. His book “Ecology and Ecosystem Conservation” encapsulates much of his thinking about biodiversity and ecosystems and was heavily inspired by the writings of Aldo Leopold. More recently, his book “Resolving Ecosystem Complexity” lays out a blueprint for conducting empirical research to provide predictive understanding of how an ecosystem’s complexity develops from the vast numbers of species interacting within it.

PROFESSIONAL AFFILIATIONS

Ecological Society of America; American Association for the Advancement of Science; Society of American Naturalists,

PROFESSIONAL SERVICE

To Conservation and Policy

2014-present Member, Science Advisory Council, Ocean Conservancy, Washington, DC.

- 2012 Science Advisor, Open Space Institute's Northeast Resilient Landscapes Initiative, NY
2005-2009 Advisory Board Member, Center for Conservation Solutions, American Forest Foundation, Washington, DC.
- 2004 Member, US Environmental Protection Agency (EPA) Scientific Advisory Board ad hoc panel reviewing the EPA Report on the Environment.
- 2004 Presented "The effects of global climate change on species diversity and ecosystem functioning within the continental USA" to the spring meeting of the New England Governors and Eastern Canadian Premier's conference. This was a prelude to the fall meeting that led to significant New England wide agreements and subsequent legislation on controlling greenhouse gas emissions in New England.
- 1994 – 2000 Scientific Advisory Board, Mistik Forest Management Ltd., Saskatchewan, Canada
1999 Member, Scientific Advisory Panel on "Total Land Management", Mining Prospectors and Developers Association of Canada.

To Academics/Professional Societies

- 2016-2018 Member, Fellows Selection Committee, Ecological Society of America
2015 Member, NSF site review panel evaluating the National Socio-Environmental Synthesis Center (SESYNC) for a second 5-year term funding renewal.
- 2012 Member, Society of American Naturalists ad hoc committee to select the Editor-in-Chief of *The American Naturalist*
- 2012-2014 Member, Steering Committee, Predator-Prey Gordon Research Conference
2011-2012 Member, Steering Committee for Workshop: Climate change and species interactions: ways forward. Institute of Ecosystem Studies, Millbrook NY
- 2010-2013 Member, Editorial Advisory Board, *Encyclopedia of Sustainability Volume 5: Ecosystem Management and Sustainability*.
- 2010, 2013 Judge, Blavatnik Awards for Young Scientists, New York Academy of Sciences.
2010 Member, Millennium Conferences proposal review committee, Ecological Society of America.
- 2004-2010 Invited Faculty Member, Community Ecology and Biodiversity Group (1 of 9 original Internationally) Faculty of 1000 Biology—A next-generation literature awareness tool in which faculty members highlight the most interesting papers published in the biological sciences.
- 2006-2014 Review Panel Member, on various US National Science Foundation (NSF) Environmental Biology Panels (DDIG, General Ecology, Population & Community Ecology preproposal)
- 2004 External Faculty Opponent, Ph.D. Dissertation, Umeå University
2002 External Faculty Opponent, Ph.D. Dissertation, University of Amsterdam
2002 Organized a Special Feature entitled "Linking Individual-scale trait plasticity to community dynamics" published in *Ecology*.
2002 Review Panel Member, US National Science Foundation (NSF) Biocomplexity in the Environment Program.
- 2000 Review Panel Member, United States Department of Agriculture (USDA) Ecosystem Science Grants Program
2000 Review Panel Member, US National Science Foundation (NSF) Doctoral Dissertation Improvement Grants Program
- 1996 Guest Editor, Special issue of *Evolutionary Ecology* (November 1997) on the theme "The population and community dynamical implications of optimal foraging theory" commemorating the 30th anniversary of optimal foraging theory.

To the Community

- 2005- 2008 Member, New Haven Science Fair Steering Committee

2005 Yale-New Haven Teacher's Institute—Teaching Fellow: Ecology and Conservation
for New Haven Public School teachers.
1995- present Mentor, New Haven Science Fair

EDITORIAL SERVICE

2014- Associate Editor, *ECOLOGY AND EVOLUTION*
2012, 2013 Guest Editor, *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCE USA*
(3 manuscripts)
2006-2014 Associate Editor, *ECOSCIENCE*
2010-2013 Associate Editor, *ECOSPHERE*
2009-2013 Associate Editor, *THE AMERICAN NATURALIST*
2007-2009 Associate Editor, *RESEARCH LETTERS IN ECOLOGY*
2004-2008 Editor, *ECOLOGY LETTERS*
2001-2007 Associate Editor, *OECOLOGIA*
1999-2005 Associate Editor, *ECOLOGY & ECOLOGICAL MONOGRAPHS*

PEER REVIEW CONTRIBUTIONS

- Proposal Reviewer for USA National Science Foundation (NSF): Ecology, Population Biology, and Physiology and Behavior panels.
- Proposal Reviewer for Academy of Sciences of the Czech Republic
- Proposal Reviewer for Canada Natural Sciences Research Council (NSERC)
- Proposal Reviewer for Israeli National Science Foundation
- Proposal Reviewer for National Geographic Committee for Research and Exploration
- Proposal Reviewer for Netherlands Organization for Scientific Research
- Proposal Reviewer for Royal Society of New Zealand Marsden Fund
- Proposal Reviewer for South African Science Foundation
- Proposal Reviewer for US-Israel Binational Science Foundation
- Proposal Reviewer for UK Natural Environment Research Council (NERC)

Member of review panel, 1996 National Wildlife Federation Climate Change Fellowships

Book manuscript review for Johns-Hopkins University Press, Princeton University Press, University of Chicago Press, Island Press, Routledge Publishing, Blackwell Scientific, Oxford University Press, Yale University Press.

Reviewer for *Acta Oecologia*, *Acta Theriologica*, *American Midland Naturalist*, *American Naturalist*, *Basic and Applied Ecology*, *Biodiversity and Conservation*, *BioScience*, *Biotropica*, *Canadian Journal of Zoology*, *Conservation Biology*, *Ecology*, *Ecology Letters*, *Ecological Applications*, *Ecological Entomology*, *Ecological Modelling*, *Ecoscience*, *Ecosystems*, *Holarctic Ecology/Ecography*, *Global Change Biology*, *Journal of Animal Ecology*, *Journal of Ecology*, *Journal of Insect Behavior*, *Journal of Mammalogy*, *Journal of Sustainable Forestry*, *Journal of Theoretical Biology*, *Journal of the Torrey Botanical Society*, *Journal of Wildlife Management*, *Nature*, *Nature Communications*, *Oecologia*, *Oikos*, *PLoS Biology*, *PLoS ONE*, *Proceedings of the National Academy of Science*, *Proceedings of the Royal Society of London*, *Science*, *Science*, *Theoretical Population Biology*.

SERVICE TO YALE UNIVERSITY

Administrative service

2012-2016 Member, Strategic Planning Committee, Yale Forestry and Environmental Studies

2009-2011	Chair, Faculty Development and Appointments Committee, Yale Forestry and Environmental Studies
2003-2005	Member, Yale University International Education Committee
2001- 2009	Member, Yale College Environmental Studies Major Faculty Advisory Committee
2001-2008	Member, Yale University Technological Services Committee
2001-2006	Member, Yale University Press Publications Committee
2001-2004	Director of Doctoral Studies, Yale Forestry and Environmental Studies
2000-2001	Acting Chair, F&ES Curriculum Committee
1998-2002	Director, Yale University Center for Computational Biology

Committee service

Member, Yale School of Forestry and Environmental Studies Dean Search Committee
 Co-Chair, Ecological Economist search committee, Yale Forestry and Environmental Studies
 Chair, Senior Aquatic Ecologist search committee, Yale Forestry and Environmental Studies
 Chair, Junior Ecosystem Ecologist search committee, Yale Forestry and Environmental Studies
 Chair, Undergraduate Education Committee, Yale Forestry and Environmental Studies
 Member, Faculty Council, Yale Institute for Biospheric Studies
 Member, various Ecology search committees, Yale Department of Ecology and Evolutionary Biology
 Member, Yale University Environmental Studies Major Steering Committee
 Member, various Faculty search committees, Yale Forestry and Environmental Studies
 Member, Doctoral Admissions committee, Yale Forestry and Environmental Studies
 Member, Minority Recruitment committee, Yale Forestry and Environmental Studies

TEACHING

Courses taught

Population/Community Ecology	Conservation Biology	Experimental Design
Wildlife Conservation Ecology	Developing a Conservation Ethic	Biostatistics
Evolutionary Ecology	Bioreserve Design	Research Methods
Ecology & Environmental Problem Solving	Ecosystem Ecology	Ethics and Ecology of Biodiversity Conservation

Student Advising

Senior Undergraduate Theses Supervised

Studies in the Environment

Anne Guerry. 1995. The fusion of ecology and wildlife management: perspectives on wolf control in Alaska.

Leana Rosette 1998. The reintroduction of two Mantled Howler Monkeys in Manual Antonio, Costa Rica.

Anna Gross 2003-2004. Evaluating habitat conservation plans.

Dawn Lippert 2005-2006. Vieques' Vanishing Residents: An Analysis of Leatherback Sea Turtle Management on Vieques Island, Puerto Rico

Karen Stamieszkin 2005-2006. Assessing ecological viability of oyster farming in Maine.

Christa Anderson 2006-2007. Interactions between humans and lions in southern Tanzania.

Kathy Hughes 2009-2010. Empirical study of habitat complexity and predator-prey interactions as it informs ecosystem conservation. (*Winner of the 2010 Donnelley Prize for best senior thesis in the Environmental Studies Major*)

Ecology & Evolution

- Joann Lo. 1996-1997. Associational defense hypothesis: the efficacy of trichomes as a defense against herbivory for associated defended and undefended plants.
- Blake Suttle. 1997. Agonistic interactions of prey between coexisting spiders: the effects of habitat structural complexity and food limitation.
- Kara Rodgers. 1998. The effects of herbivory and plant competition on an oldfield plant community.
- Lauge Sokol-Hessner. 2000. Understanding the effects of multiple spider predator combinations on grasshopper prey populations.
- Megann Young. 2001. Effects of intermediate trophic complexity on top-down effects in food webs.
- Farrin Anello. 2002. Effects of prey body size state on predation-risk avoidance behavior.
- Charlie Liu. 2006. Grasshopper mouthpart plasticity and implications for population dynamics.
- Katherine Urban-Mead. 2013. Influence of land use variation on pollinator diversity and abundance.

Applied Mathematics

- Sacha Litman. 1995. Stability analysis of a plant-adaptive herbivore system.

Non-thesis Masters who did major project work in my lab

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|-------------------------------|------------------------------|-------------------------------|
| Andrew Beckerman 1992-1994 | Drue DeBerry 1997-1999 | Kathryn Freund 2008-2010 |
| Erin Girdler 1992-1994 | Jennifer Garrison 1997-1999 | Alexandra Whitney 2008-2010 |
| Scott Mathison 1992-1994 | Tierney Kelly 2000-2001 | Jessica Price 2009-2011 |
| Theodore Wong 1993-1995 | Elisabeth Jones 2000-2002 | Kevin Barrett 2010-2012 |
| Andrew Cooper 1993-1995 | Krithi Karanth 2000-2003 | Jeff Carroll 2010-2012 |
| Brett Elderred 1993-1995 | Elizabeth Kalies 2002-2004 | Jason Clark 2010-2012 |
| Kristina Rothley 1993-1995 | Jennifer Molnar 2002-2004 | Judith Ament 2011-2013 |
| Kathleen O'Brien 1994-1996 | Tendro Ramaharitra 2003-2005 | Henry Glick 2011-2013 |
| Maria Uriarte 1994-1996 | Radhika Dave 2004-2006 | Robert Buchkowski 2012-2014 |
| Jay West 1994-1996 | Rebecca Sanborn 2004-2006 | Bryan Crowley 2012-2014 |
| Heinrich zu Dohna 1996-1998 | Charlie Liu 2005-2007 | Jeffrey Smith 2013-2015 |
| Kevin Drury 1996-1998 | Maya Cahn 2005-2007 | Meredith VanAcker (2014-2016) |
| Andrei Podolsky 1996-1998 | Kelsey Kidd 2006-2008 | Adam Eichenwald (2016-) |
| Benjamin Ruttenberg 1997-1998 | Angela Rutherford 2006-2008 | |
| Rebecca Young 1997-1999 | Sarah Fierce 2008-2010 | |
| Anne Axel 1997-1999 | | |

Doctoral Students***Current***

- Alexandria Moore (2013-)
- Robert Buchkowski (2014-) *recipient of an NSERC-Canada Graduate Scholarship*
- Mary Burak (2016-) *recipient of an NSF Graduate Research Fellowship*
- Julia Monk (2016-) *recipient of a Yale Graduate School Dean's Emerging Scholars Fellowship (1 of 15 awarded in 2016)*

Past

- Andrew Beckerman (1995-1999). *The distribution of the red-legged grasshopper, Melanoplus femurrubrum, among oldfields: resolving a counterintuitive pattern.* Currently Senior Lecturer (Associate Professor in US system), Department of Animal and Plant Sciences, University of Sheffield, Sheffield UK.

- Susan Koenig, (1995-1999). *The reproductive biology of Jamaica's black-billed parrot (Amazona agilis) & conservation implications*. Currently the Executive Director, Windsor Research Station, Windsor Jamaica.
- Kristina Rothley (1996-1999). *Trade-offs between conflicting demands and the management of habitat*. Currently Environmental Law Student, University of Maine Law School.
- Jason Grear (1998-2003) *Mechanisms determining spatial dynamics of forest collembolans*. Currently Ecologist, EPA Atlantic Ecology Division National Health and Environmental Effects Research Laboratory, Narragansett, RI
- Catherine Burns (1999-2004: recipient of an NSF Graduate Research Fellowship) *Investigating the response of white-footed mice to habitat loss: from individual behavior to landscape ecology*. Currently Associate Director, Water and Habitat for Nature, The Nature Conservancy, California.
- Michael Booth (1999-2005) *Effects of ectomycorrhizal fungi on forest plant competition*. Deceased 2011.
- Elizabeth Jones (2002-2007: co-advised with Lisa Curran) *The influence of mammalian seed predation on five species in Papua New Guinea: differential effects of recruitment, distribution and implications for community composition*. Currently: teaching high school science in Palo Alto, CA.
- Brandon Barton (2005-2010). *Species Interactions in a Warming Climate: Examining the Direct and Indirect Effects of Climate Change on New England Grassland Food Webs*. Currently Assistant Professor, Department of Biological Sciences, Mississippi State University.
- Holly Jones (2005-2010). *Evaluating island recovery following invasive species removal and seabird restoration*. Currently Assistant Professor, Department of Biological Sciences, Northern Illinois University.
- Jennifer Miller (2009-2015: recipient of an NSF Graduate Research Fellowship). *Examining Predation Risk as a Guide for Mitigating Large Carnivore Attacks on Livestock*. Currently Postdoctoral Associate, Panthera and University of Cape Town.
- Kevin McLean (2010-2016: recipient of a NASA Earth and Space Science Fellowship) *Canopy habitat and arboreal mammal Community: Integration of movement ecology and wildlife monitoring in a Neotropical forest*. Currently Science Education Fellow, Tangled Bank Studios, Howard Hughes Medical Institute, Washington DC.
- Colin Donihue (2011-2016). *Drivers of functional trait variability in Podarcis erhardii, the Aegean Wall Lizard*. Currently Postdoctoral Associate, Department of Organismic and Evolutionary Biology, Harvard University.
- Karin Burghardt (2010-2016: recipient of an NSF Graduate Research Fellowship) *Linking plasticity in Goldenrod anti-herbivore defense to population, community and ecosystem processes*. Currently Postdoctoral Fellow, Smithsonian Institute, Washington DC.

Postdoctoral Associates

Current

Past

- Peter Hambäck (1997-1999): Currently Professor, Department of Botany, Stockholm University, Stockholm, Sweden
- Barney Luttbeg (1997-1999): Currently Assistant Professor, Department of Zoology, Oklahoma State University
- Ofer Ovadia, (1999-2003): Currently Professor, Department of Life Sciences, Ben Gurion University, Beer Sheva, Israel
- Joohyoung Lee (2003-2005): Currently Research Scientist, Wayne State University.
- Dror Hawlena (2007-2011): Currently Senior Lecturer, Institute of Life Sciences, Hebrew University, Jerusalem, Israel

Chia-Ying Ko (2010-2012): Currently Assistant Professor, Institute of Fisheries Science and Department of Life Science, National Taiwan University
 Anne Trainor (2011- 2015): Currently Development by Design Spatial Scientist, The Nature Conservancy Africa Region program.
 Adam Rosenblatt (2013-2016): Currently AAAS Policy Fellow in the US Department of Energy
 Lauren Smith (2014-2016): Currently Postdoctoral Fellow, National Institute for Mathematical and Biological Synthesis.

PUBLICATIONS

Books

- 1) Schmitz, O.J. 2016. *The New Ecology: Rethinking a Science for the Anthropocene*. Princeton University Press. *Forthcoming*
- 2) Ohgushi, T., O.J. Schmitz and R.D. Holt (Editors). 2012. *Trait-Mediated Indirect Interactions: Ecological and Evolutionary Perspectives*. Cambridge University Press with the British Ecological Society Ecological Reviews Series.
- 3) Schmitz, O.J. 2010. *Resolving Ecosystem Complexity*. Princeton University Press Monographs in Population Biology.
- 4) Schmitz, O.J. 2007. *Ecology and Ecosystem Conservation*. Island Press—Foundations of Contemporary Environmental Studies Series.

Articles in Peer-reviewed Journals

—————2017

- 5) Buchkowski, R.W., M.A. Bradford, A.S. Grandy, O.J. Schmitz and W. R. Wieder. Applying population and community ecology theory to advance understanding of belowground biogeochemistry. *Ecology Letters* (in press).
- 6) Smith-Ramesh, L.M., A.C. Moore and O.J. Schmitz. 2017. Global synthesis suggests that food web connectance correlates to invasion resistance. *Global Change Biology* 23:465-473.

—————2016

- 7) Benedek, K., S.E. Zytynska, J. Bálint, R.V. Salamon, M. Mehrparvar, W.W. Weisser, O.J. Schmitz and A. Balog. 2016. Intraspecific differences in plant chemotype determines the structure of arthropod food webs. *Oecologia* 180:797-807.
- 8) Ko, C-Y, O.J. Schmitz and W. Jetz. 2016. The limits of direct community modeling approaches for broad-scale predictions of ecological assemblage structure. *Biological Conservation* 201: 396-404.
- 9) Mendelsohn, R, I.C. Prentice, O.J. Schmitz, B. Stocker, R.W. Buchkowski and B. Dawson. 2016. The ecosystem impacts of severe warming. *American Economic Review: Papers and Proceedings* 106:612-614.

- 10) Miller, J.R.B., Y.V. Jhala and O.J. Schmitz. 2016. Human perceptions mirror realities of carnivore attack risk for livestock: Implications for mitigating human-carnivore conflict. *PLoS ONE* 11(9): e0162685
- 11) Miller, J.R.B., K.J. Stoner, M.R. Cejtin, T.K. Meyer, A.D. Middleton, and O.J. Schmitz. 2016. Effectiveness of contemporary techniques for reducing livestock depredations by large carnivores. *Wildlife Society Bulletin in press*.
- 12) Ripple, W.J., J.A. Estes, O.J. Schmitz, V. Constant, M.J. Kaylor, A. Lenz, J.L. Motley, K.E. Self, D.S. Taylor, and C. Wolf. 2016. What is a trophic cascade? *Trends in Ecology and Evolution* 31:842-849.
- 13) Rosenblatt, A.E., B.T. Crowley and O.J. Schmitz. 2016. Linking trophic interactions to plasticity in thermal sensitivity of geographically separated populations of a herbivore. *Evolutionary Ecology* 30:649-661.
- 14) Rosenblatt, A.E., and O.J. Schmitz. 2016. Climate change, nutrition, and bottom-up and top-down food web processes. *Trends in Ecology and Evolution* 31:965-975.
- 15) Rosenblatt, A.E., L.M. Smith-Ramesh and O.J. Schmitz. 2016. Interactive effects of multiple climate change variables on food web dynamics: modeling the effects of warming, CO₂ and water availability on a tri-trophic food web. *Food Webs in press*.
- 16) Schmitz, O.J., A.E. Rosenblatt and M. Smylie. 2016. Temperature dependence of predation stress and the nutritional ecology of a generalist herbivore. *Ecology* 97:3119-3130.
- 17) Schmitz, O.J. and G.C. Trussell. 2016. Multiple stressors, state-dependence and predation risk — foraging trade-offs: toward a modern concept of trait-mediated indirect effects in communities and ecosystems. *Current Opinion in Behavioral Sciences* 12:6-11.
- 18) Smith, J.R. and O.J. Schmitz. 2016. Cascading ecological effects of landscape moderated arthropod diversity. *Oikos* 125: 1261-1271.
- 19) Wilmers, C.C. and O.J. Schmitz. 2016. Effects of wolf-induced trophic cascades on ecosystem carbon cycling. *Ecosphere* 7:e01501.

2015

- 20) Buchkowski, R.W., and O.J. Schmitz. 2015. Detritivores ameliorate the enhancing affect of plant-based trophic cascades on N cycling in an old-field system. *Biology Letters* 11:20141048. **Featured as Editor's Choice in Ecology by The Scientist** <http://www.the-scientist.com/?articles.view/articleNo/43334/title/1---1---1/>
- 21) Buchkowski, R.W., O.J. Schmitz, and M.A. Bradford. 2015. Microbial stoichiometry overrides biomass as a regulator of soil carbon and nitrogen cycling. *Ecology* 94:1139-1149.
- 22) Fortin, D.,P.-L. Buono, O.J. Schmitz, N. Courbin, C. Losier, M.-H. St. Laurent, P. Drapeau, S. Heppell, C. Dussault, V. Brodeur and J. Mainguy. 2015. A spatial theory for characterizing predator-multiprey interactions in heterogeneous landscapes. *Proceedings of the Royal Society of London B* 282: 20150973
- 23) Fraser, L.H., W.L. Harrower, H.W. Garris, S. Davidson, P.D.N. Hebert, R. Howie, A. Moody, D.

- Polster, O.J. Schmitz, A.R.E. Sinclair, B.M. Starzomski, T. P. Sullivan, R. Turkington, and D. Wilson. 2015. A call for applying trophic structure to restoration. *Restoration Ecology* 23:503-507.
- 24) Leroux, S.J. and O.J. Schmitz. 2015. Predator-driven elemental cycling: the predation and risk effects on ecosystem elemental cycling. *Ecology and Evolution* 5:4976-4988.
- 25) Miller, J.R.B., Y.V. Jhala, J. Jena and O. J. Schmitz. 2015. Landscape-scale accessibility of livestock to tigers: implications of spatial grain for modeling predation risk to mitigate human-carnivore conflict. *Ecology and Evolution* 5: 1354-1367.
- 26) Schmitz, O.J., R.W. Buchkowski, K.T. Burghardt, and C.M. Donihue. 2015. Functional traits and trait-mediated interactions: connecting community-level interactions with ecosystem functioning. *Advances in Ecological Research* 52:319-344.
- 27) Schmitz, O.J., J.J. Lawler, P. Beier, C. Groves, G. Knight, D.A. Boyce Jr, J. Bulluck, K.M. Johnston, M.L. Klein, K. Muller, D.J. Pierce, W.R. Singleton, J.R. Stritholt, D.M. Theobald, S.C. Trombulak, and A.E. Trainor. 2015. Conserving biodiversity: practical guidance about climate change adaptation approaches in support of land-use planning. *Natural Areas Journal* 35:190-203.
- 28) Smith, L.M. and O.J. Schmitz. 2015. Invasive plants may promote predator-mediated feedback that inhibits further invasion. *Ecology and Evolution* 5:2411-2419.
- 2014
- 29) Ko, C-Y, O.J. Schmitz, M. Barbett-Massin and W. Jetz. 2014. Dietary guild composition and disaggregation of avian assemblages under climate change. *Global Change Biology* 20:790-802.
- 30) Miller, J.R.B., J.M. Ament, and O.J. Schmitz. 2014. Fear on the move: predator hunting mode predicts variation in prey mortality and plasticity in prey spatial response. *Journal of Animal Ecology* 83: 214-222.
- 31) Ripple, W. J., J. A. Estes, R.L. Beschta, C.C. Wilmers, E.G. Ritchie, M. Hebblewhite, J. Berger, B. Elmhagen, M. Letnic, M.P. Nelson, O.J. Schmitz, D.W. Smith, A.D. Wallach, and A.J. Wirsing. 2014. Status and ecological effects of the world's largest carnivores. *Science* 343:1241484.
- 32) Rosenblatt, A.E. and O.J. Schmitz. 2014. Interactive effects of multiple climate change variables on trophic interactions: a meta-analysis. *Climate Change Responses* 1:8 doi:10.1186/s40665-014-0008-y.
- 33) Schmitz, O.J. and B.T. Barton. 2014. Climate change effects on physiological and behavioral ecology of predator-prey interactions: implications for conservation biological control. *Biological Control* 75:87-96.
- 34) Schmitz, O.J. P.A. Raymond, J.A. Estes, W.A. Kurz, G.W. Holtgrieve, M.E. Ritchie, D.E. Schindler, A.C. Spivak, R.W. Wilson, M.A. Bradford, V. Christensen, L. Deegan, V. Smetacek, M.J. Vanni, and C.C. Wilmers. 2014. Animating the carbon cycle. *Ecosystems* 7:344-359.
- 35) Sergio, F., O.J. Schmitz, C.J. Krebs, R.D. Holt, M.R. Heithaus, A.J. Wirsing, W.J. Ripple, E. Ritchie, D. Ainley, D. Oro, Y. Jhala, F. Hiraldo and E. Korpimäki. 2014. Towards a cohesive, holistic view of top predation: a definition, synthesis and perspective. *Oikos* 123: 1234-12143. **Flagged as "Editor's Choice" by *Oikos*.**

- 36) Szénási, Á, Z. Pálinkás, M Zalai, O.J. Schmitz and A. Balog. 2014. Short-term effects of different genetically modified maize varieties on arthropod food web properties: an experimental field assessment. *Nature Scientific Reports* 4:5315.
- 37) Trainor, A.E. and O.J. Schmitz. 2014. Infusing considerations of trophic dependencies into species distribution modeling. *Ecology Letters* 17:1507-157.
- 38) Trainor, A.E., O.J. Schmitz, J. Ivan, and T.M. Shenk. 2014. Enhancing species distribution modeling by characterizing predator-prey interactions. *Ecological Applications* 24:204-216.

2013

- 39) Balog, A. and O.J. Schmitz. 2013. Predation determines different selective pressure on pea aphid host races in a complex agricultural mosaic. *PLoS ONE*: 8(2): e55900.
- 40) Balog, A. and O.J. Schmitz. 2013. Predation drives stable coexistence ratios between red and green pea aphid morphs. *Journal of Evolutionary Biology* 26:545-552.
- 41) Barrett, K. J. and O.J. Schmitz. 2013. Effects of deer settling stimulus and deer density on regeneration in a harvested southern New England forest. *International Journal of Forestry Research* 2013: Article ID 690213.
- 42) Schmitz, O.J. 2013. Global climate change and the evolutionary ecology of ecosystem functioning. *Annals of the New York Academy of Science* 1297:61-72.
- 43) Schmitz, O. J., M.A. Bradford, M.S. Strickland, and D. Hawlena. 2013 Linking predation risk, herbivore physiological stress and microbial decomposition of plant litter. *Journal of Visualized Experiments* 73:e50061, doi:10.3791/50061.
- 44) Strickland, M.S., D. Hawlena, A. Reese, M.A. Bradford and O.J. Schmitz. 2013. Trophic cascade alters ecosystem carbon exchange. *Proceedings of the National Academy of Science USA* 110:11035-11038. **Featured by *Scientific American*** <http://www.scientificamerican.com/article.cfm?id=predators-help-plants-put-away-carbon>.

2012

- 45) Hawlena, D., M.S. Strickland, M.A. Bradford, and O.J. Schmitz. 2012. Fear of predation slows plant-litter decomposition. *Science* 336: 1434–1438. **Featured by *Nature News and Comment*** <http://www.nature.com/news/stressed-grasshoppers-slow-plant-decay-1.10839>; **Featured by *Faculty of 1000 Biology*** <http://f1000.com/717747953>
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- Donihue, C.M., K.M. Brock, J. Foufopoulos, and A.R. Herrel. 2015. Feed or fight: testing the impact of food availability and intraspecific aggression on the functional ecology of an island lizard. *Functional Ecology* DOI: 10.1111/1365-2435.12550.
- McLean, K.A, A.M. Trainor, G.P. Asner, MC. Crofoot, M.E. Hopkins, C.J. Campbell, R.E. Martin, D. E. Knapp, P.A. Jansen. 2016. Movement patterns of three arboreal primates in a Neotropical moist forest explained by LiDAR-estimated canopy structure. *Landscape Ecology* 31(8): 1849-1862.
- Buchkowski, R.W. 2016. Top-down consumptive and trait-mediated control do affect soil food webs: It's time for a new model. *Soil Biology and Biochemistry* 102: 29-32.

RESEARCH GRANTS & CONTRACTS

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| 2014-2019 | The macrophysiology of food chain dynamics. NSF DEB-1354762. \$509,320 |
| 2014-2016 | Doctoral Dissertation Improvement Grant of Karin Burghardt: Linking phenotypic variation in plant anti-herbivore defense to spatial variation in soil nutrient pools NSF DEB-1404120. \$21,645 |
| 2011-2013 | Yale Mapping Framework for Wildlife Conservation and Climate Adaptation. Co-Funded by Doris Duke Charitable Foundation, Kresge Foundation & Wilburforce Foundation. \$1,400,000 |

2010-2011	Climate warming, species interactions and transformation of ecosystem carbon cycling. Yale Climate and Energy Institute \$94,675 (Co-PI with M. Bradford)
2009-2010	Vertebrates on the Move: Managing Cascadia Wildlife in the Face of Climate Change. US National Park Service 1 H9471091063 \$6800.
2009-2010	Doctoral Dissertation Improvement Grant of Holly Jones: Quantifying a chronosequence of seabirds and island ecosystem recovery after rat eradication. NSF OISE 0853846 \$15,000.
2009-2010	Doctoral Dissertation Improvement Grant of Brandon Barton: How will climate change affect trophic interactions? NSF DEB 0910047 \$13,000.
2008-2013	Complexity and stability in an old-field ecosystem: the role of asymmetrical interaction strengths and food web topology. NSF DEB-0816504 \$474,346.
2007	REU Supplement to DEB 0515014 Predator identity and trophic control of biodiversity and ecosystem function. \$4,500
2006-2009	OARE: Online Access to Research in the Environment--provides developing world free or greatly discounted access to the scholarly environmental record of the world's leading scientific publishers through a secure internet portal. Co-funded: William and Flora Hewlett Foundation and John D. and Catherine T. MacArthur Foundation \$500,000.
2005-2009	Predator identity and trophic control of biodiversity and ecosystem function. NSF DEB 0515014 \$475,017
2003-2004	Doctoral Dissertation Improvement Grant of Michael Booth: Do common mycorrhizal networks limit plant competition and species exclusion in temperate forests? NSF DEB 0309225 \$10,080
2002	REU Supplement to NSF DEB 0107780 \$5938
2001-2005	Perturbation and recovery of an old-field food web. NSF DEB 0107780 \$212,833
2001-2002	Assessing sensitivity of wildlife species to anticipated climate change in parks and protected areas in the continental United States. Edward John Noble Foundation \$100,000.
2000	Computational Ecology: teaching implementation phase. Yale University Library and Information Technology Services Faculty Support Grant \$10,000
1999	Understanding the role of individual-scale processes in community-level dynamics. NSF-National Center for Ecological Analysis and Synthesis (NCEAS): \$34,560.
1998-1999	A computer-based learning environment for teaching community ecology. Yale University Library and Information Technology Services Faculty Support Grant \$10,000

- 1998-1999 Doctoral Dissertation Improvement Grant of Andrew Beckerman: The distribution of a grasshopper species among New England Fields: population ecology along an environmental gradient. NSF DEB-9801665 \$5672
- 1997-1999 Modelling the industrial ecosystem CoPI with T. Graedel and L. Bennett
NSF BES-9729295 \$100,000
- 1996-1999 Adaptive management of boreal ecosystems for productivity and diversity:
Applying exploitation ecosystems concepts to forestry and forest management
MISTIK Forest Management Ltd., Saskatchewan, Canada \$240,000
- 1996 REU Supplement to NSF DEB-9508604 \$4,688
- 1995-1997 Organizational complexity in ecological food webs: experimental analysis
of interaction strength in an old-field system NSF DEB-9508604 \$50,000
- 1994-1997 Multiscale models in computational biology. CoPI with G. Wagner and L. Buss,
Yale Center for Computational Ecology NSF BIR-9400642 \$165,230
- 1993-1995 Influence of global climate change on the distribution and population
dynamics of selected wildlife species. Electric Power Research Institute
\$104,651
- 1986-1987 Development of cost effective management of wintering deer. Ontario Ministry of
Natural Resources Renewable Resources Research Grants. \$20,000

CONFERENCE SYMPOSIA ORGANIZED

- O.J. Schmitz and Christopher Wilmers. Animating the carbon cycle. Ecological Society of America, Pittsburgh, August, 2017
- O.J. Schmitz, P. Beier and A. Trainor. Towards conservation assessments for climate adaptation: presentation and evaluation of a framework. North America Congress for Conservation Biology. Oakland, CA, July 15-18, 2012
- A.P. Beckerman and O.J. Schmitz. Food webs and climate change. Ecological Society of America, Pittsburgh, August 1-6, 2010.
- T. Oghushi, O.J. Schmitz and R. Holt. Trait-mediated indirect effects in insect communities. International Congress of Entomology, Durban, South Africa (6-12 July 2008)

CONFERENCE PRESENTATIONS

- Schmitz, O.J. Toward a community ecology of landscapes. **Keynote address** Symposium on Frontiers in Resource and Habitat Selection Analysis, Canadian Society of Ecology and Evolution Annual Meeting, Saskatoon, SK, May 2015.
- Schmitz, O.J. and S.J. Leroux. The evolutionary ecology of predator-driven elemental cycling: a stoichiometrically explicit approach. Ecological Society of America Annual meeting August 2014.
- Schmitz, O.J. Developing a cohesive, holistic view of predator-prey interactions. **Invited Presentation** Gordon Research Conference on Predator-Prey Interactions, Ventura, CA, January 2014.

- Schmitz, O.J. Fields of dreams: rebuilding food web structure to restore grassland ecosystems. **Invited Presentation** Annual Meeting of the Canadian Society for Ecology and Evolution, June 2013.
- Schmitz, O.J. Global climate change and the evolutionary ecology of ecosystem functioning. **Invited Presentation** Climate Change and Species Interactions: Ways Forward, Carey Institute of Ecosystem Studies, Millbrook, NY, Nov 2012.
- Schmitz, O.J. A framework to guide the use of adaptation approaches for conservation of biodiversity in an era of climate change. Towards Conservation Assessments for Climate Adaptation: Presentation and Evaluation of a Framework Session, North America Congress for Conservation Biology. Oakland, CA, July 2012.
- Schmitz, O.J. Climate change, food web reorganization and implications for carbon and nitrogen cycling. **Invited presentation** Biodiversity, Global Change and Insect-Mediated Ecosystem Services Session, Entomological Society of America Annual meeting November 2011.
- Schmitz, O.J. Climate change and the potential for transformation of food web connectedness. Ecological Society of America, Pittsburgh, August 2010.
- Schmitz, O.J. Predator identity and the nature of trait-mediated indirect effects. International Congress on Entomology, Durban South Africa, July 2008.
- Schmitz, O.J. Predator diversity and trophic interactions. **Invited Presentation** Trophic cascades across ecosystems session. Annual Meeting of the Ecological Society of America, San Jose CA, August 2007.
- Schmitz, O.J. Stoichiometry and Food web interactions: what are the questions and how do we answer them? **Invited Presentation** Stoichiometry of terrestrial systems contributed session, Annual Meeting of the Ecological Society of America, Memphis, TN, August 2006.
- Schmitz, O.J. Looking at biodiversity and ecosystem functioning vertically as well as horizontally. **Invited presentation**, International Symposium on Biodiversity and Dynamics of Communities and Ecosystems: Structures, Processes and Mechanisms Osaka, Japan, March 2006.
- Schmitz, O.J. Perturbation and alternate states of trophic control of biodiversity and productivity. Annual Meeting of the Ecological Society of America, Portland OR, August 2004.
- Schmitz, O.J. Evolutionary ecology: the theater and the play. **Invited Presentation:** A Day of Commemoration honoring G. Evelyn Hutchinson on the occasion of his 100th birthday. Yale University, October 2003.
- Schmitz, O.J. Biodiversity cascades: effects of top predators on plant diversity mediated by herbivore antipredator behavior. **Invited Presentation:** Trophic Cascades in Terrestrial Systems Symposium, Annual Meeting of the Ecological Society of America, Tucson, AZ, August 2002.
- Schmitz, O.J. Trait variation and direct and indirect effects in an old-field system. **Invited Presentation:** Mini Symposium on structured population dynamics. University of Amsterdam, Amsterdam, The Netherlands, May 2002.
- Schmitz, O.J. Climate change effects on wildlife species distribution and life-history: synthesis and future steps. **Invited Presentation:** Mini-conference on “The big unknowns in global change”. Athens, GA, April 2001.

- Schmitz, O.J. Herbivore state-dependence and behavior-mediated trophic interactions: toward generalizable theory for the dynamics of plant-herbivore systems. **Invited presentation**: Gordon Research Conference on Plant-Herbivore Interactions. Ventura, CA, February 2001
- Schmitz, O.J. and K.B. Suttle. Predator hunting mode and emergent indirect effects in old-field interaction webs. Annual Meeting of the Ecological Society of America, Spokane WA, August 1999.
- Luttbeg, B. and O.J. Schmitz. Predator and prey models with flexible individual behavior and imperfect information. International Society for Behavioral Ecology, Monterey, CA, August 1998.
- Schmitz, O.J. Combining mathematical modeling with field experimentation to unravel the nature and strength of species interactions. **Invited Presentation**, Symposium on Theoretical, Empirical and Statistical Approaches to Measuring Interactions Strengths. Annual Meeting of the Ecological Society of America, Albuquerque, NM. August 1997
- Schmitz, O.J. Organizational complexity of old-field food webs. Annual Meeting of the Ecological Society of America, Providence, RI, August 1996.
- Schmitz, O.J. Multiple ecosystem states: rethinking the role of deer in forest ecosystem dynamics. **Invited Presentation** in a symposium entitled "The Science of Overabundance: the ecology of unmanaged deer populations" Smithsonian Institution, Conservation and Research Center, National Zoological Park, November 1994.
- Schmitz, O.J. Optimal foraging and consumer-resource dynamics. **Invited Presentation**, Predation Symposium, 6th International Theriological Congress, Sydney, Australia, August 1993.
- Belovsky, G.E. and O.J. Schmitz. Herbivore optimal foraging and plant defenses. **Invited Presentation**, Plant-herbivore interactions symposium, 6th International Theriological Congress, Sydney, Australia, July 1993.
- Schmitz, O.J. Risk-sensitivity and diet selection by mammals. **Invited Presentation**, Optimal foraging Symposium, 5th International Theriological Congress, Rome, Italy, August 1989.
- Schmitz, O.J. Optimal activity and habitat choice of wintering deer. Annual Meeting of the Ecological Society of America, Toronto Ontario, August 1989.
- Schmitz, O.J. Optimal diet selection by white-tailed deer: balancing reproduction with starvation risk. 2nd International Behavioral Ecology Conference, Vancouver, B.C. October 1989.
- Schmitz, O.J. Risk-sensitive foraging by wintering deer. Annual Meeting of the Ecological Society of America, Columbus, Ohio, August 1988.

INVITED SEMINARS

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| 2017 | Ecology Program, University of Wisconsin |
| 2016 | Department of Marine and Environmental Sciences, Northeastern University
Department of Biological Sciences, Mississippi State University |
| 2014 | Curriculum for the Environment and Ecology, University of North Carolina-Chapel Hill
Ecology, Evolutionary Biology, and Behavior Program, Michigan State University
Harvard Forest, Harvard University |

- W.K. Kellogg Biological Station, Michigan State University
 Department of Ecology and Evolutionary Biology, Princeton University
 Institute of Ecology, Friedrich Schiller University (Germany)
- 2013 Department of Ecology and Evolution, Stony Brook University
 Department of Biological Sciences, Northern Illinois University
 Department of Ecology and Evolution, University of California—Davis
 Department of Ecology, Evolution and Behavior, Hebrew University (Israel)
 Department of Biodiversity, Earth and Environmental Science, Drexel University
- 2012 Department of Integrative Biology, University of Guelph
 Netherlands Institute of Ecology, Wageningen (Netherlands)
- 2011 Department of Zoology, Miami University of Ohio
 Department of Biology, Case Western Reserve University
 School of Forest Resources and Environmental Science, Michigan Technological
 University
 Department of Ecology, Evolution and Conservation Biology, University of Nevada-Reno
- 2010 Department of Organismal and Evolutionary Biology, Harvard University
 Department of Biology, Duke University
 School of Biology, Georgia Institute of Technology
 Division of Biology, University of California—San Diego
 Department of Animal and Plant Sciences, University of Sheffield (UK)
 Ecology and Evolution Section, Imperial College—Silwood Park (UK)
- 2009 Department of Biological Sciences, Florida International University
 College of the Environment and Life Sciences, University of Rhode Island
 Department of Entomology, University of Maryland
 Department of Biology, Wesleyan University
 Department of Biology, North Carolina State University
- 2008 Department of Biological Sciences, Stanford University
 Department of Biology, University of Houston
 Department of Ecology, Evolution and Natural resources, Rutgers University
 Department of Biological Science, Florida State University
- 2007 Department of Zoology and Physiology, University of Wyoming
 School of Forestry, Northern Arizona University
 Department of Ecology, Evolution, and Environmental Biology, Columbia University
 Department of Biology, University of Montana
 Department of Biology, University of Pennsylvania
 Department of Biology, Syracuse University
 Department of Ecology and Evolutionary Biology, University of Michigan
- 2006 Department of Ecology and Evolution, University of Tennessee
 Department of Integrative Biology, University of Guelph
 Department of Biology, McGill University
- 2005 Department of Biology, Laval University
 Department of Integrative Biology, University of California Berkeley
 Department of Entomology, Cornell University
 Department of Entomology, and Organismal and Evolutionary Biology,
 University of Massachusetts—Amherst

- 2004 Department of Ecology and Environmental Science, Umeå University (Sweden)
 Department of Biological Sciences, University of Pittsburgh
 Department of Biology, Fordham University
 Department of Zoology, University of New Hampshire
 Institute for Biospheric Studies, Yale University
- 2003 Department of Biological Science, Simon Fraser University
- 2002 Department of Zoology, Miami University of Ohio
 Institute of Biodiversity and Ecosystem Dynamics, University of Amsterdam
 Department of Ecology and Evolutionary Biology, Yale University
 Interdisciplinary Bioethics Project, Yale University
- 2000 Department of Entomology, University of Maryland
- 1998 Department of Ecology and Evolution, University of California, Davis
 Department of Zoology, University of Toronto
- 1997 Department of Ecology and Evolution, University of Chicago
 Department of Ecology and Evolution, SUNY Stony Brook
 Department of Biology, Brown University
 Department of Biological Sciences, Dartmouth College
- 1996 Institute of Ecosystem Studies, Millbrook New York
- 1995 Department of Computer Science, University of Michigan
 Department of Biology, Boston University
 Ecosystem Group, Woods Hole Oceanographic Institute
- 1994 Department of Computer Science, University of Michigan
 Department of Zoology, University of Guelph
 Department of Animal Ecology, Swedish University of Agricultural Science, Uppsala
 (Sweden)
- 1992 Department of Fisheries and Wildlife, Utah State University