

Curriculum Vitae

Oswald Joseph Schmitz
Oastler Professor of Population and Community Ecology

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DEGREES

2003	MA Privatum, Yale University
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

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

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.
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

PROFESSIONAL AFFILIATIONS

Ecological Society of America; American Association for the Advancement of Science; Sigma Xi, The Scientific Research Society, Society of American Naturalists

PROFESSIONAL SERVICE***To Conservation and Policy***

- 2005-present 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

- 2004-2008 Invited Faculty Member, Community Ecology and Biodiversity Group (1 of 9 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 Review Panel Member, US National Science Foundation (NSF) Ecological Biology Program.
- 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

2009-present Associate Editor, THE AMERICAN NATURALIST
2006-present Associate Editor, ECOSCIENCE
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, Oecologia, Oikos, PLoS Biology, PLoS ONE, Proceedings of the National Academy of Science, Proceedings of the Royal Society of London, Science, Theoretical Population Biology.

SERVICE TO YALE UNIVERSITY

Administrative service

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

Committee service

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, Ecology Search Committee, Yale Department of Ecology and Evolutionary Biology
 Member, Yale University Environmental Studies Major Steering Committee
 Member, Tropical Ecology search committee, Yale Forestry and Environmental Studies
 Member, Ecosystem Ecology search committee, Yale Forestry and Environmental Studies
 Member, Yale Forest Forum
 Member, Landscape Ecologist search committee Yale Forestry and Environmental Studies
 Member, Junior Ecologist search committee, Yale Department of Ecology and Evolutionary Biology
 Member, Senior Ecologist search committee, Yale Department of Ecology and Evolutionary Biology
 Member, Joint Senior Ecologist search committee, Yale School of Forestry and Environmental Studies
 & Department of Ecology and Evolutionary Biology
 Member, Doctoral Admissions committee, Yale Forestry and Environmental Studies
 Member, Minority Recruitment committee, Yale Forestry and Environmental Studies
 Member, Student Financial Aid committee, Yale Forestry and Environmental Studies
 Member, Marsh Botanical Garden restoration committee

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	

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 Manuel 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.

Ecology & Evolution

Joann Lo. 1996-1997. Associational defense hypothesis: the efficacy of trichomes as a defense against herbivory for associated defended and undefended plants.
 Kenwyn 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.

Ecology & Evolution Cont'd

- 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.

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 1998-1999 |
| Erin Girdler 1992-1994 | Jennifer Garrison 1998-1999 |
| Scott Mathison 1992-1994 | Tierney Kelly 2000-2001 |
| Theodore Wong 1993-1995 | Elisabeth Jones 2000-2002 |
| Andrew Cooper 1993-1995 | Krithi Karanth 2001-2003 |
| Brett Eldered 1993-1995 | Elizabeth Kalies 2002-2004 |
| Kristina Rothley 1993-1995 | Jennifer Molnar 2003-2004 |
| Kathleen O'Brien 1994-1996 | Tendro Ramaharitra 2004-2005 |
| Maria Uriarte 1994-1996 | Radhika Dave 2005-2006 |
| Jay West 1994-1996 | Rebecca Sanborn 2005-2006 |
| Heinrich zu Dohna 1996-1998 | Charlie Liu 2006-2007 |
| Kevin Drury 1996-1998 | Maya Cahn 2005-2007 |
| Andrei Podolsky 1996-1998 | Kelsey Kidd 2007-2008 |
| Benjamin Ruttenberg 1997-1998 | Angela Rutherford 2007-2008 |
| Rebecca Young 1997-1999 | |
| Anne Axel 1997-1999 | |

Doctoral Students***Current***

- Brandon Barton (2005-)
- Holly Jones (2005-)
- Jennifer Miller (2009-) recipient of an NSF Graduate Research Fellowship

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: Teaching high school science in Cornwall, Ontario..
- Jason Gear (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 Assistant Professor, Department of Wildlife Ecology, University of Maine-Orono.

Michael Booth (1999-2005) *Effects of ectomycorrhizal fungi on forest plant competition*. Currently, Lecturer, Department of Biology, Principia College.

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.

Postdoctoral fellows

Current

Dror Hawlena (2007-2009): PhD Department of Life Sciences, Ben Gurion University, Beer Sheva, Israel

Past

Peter Hambäck (1997-1999): Currently Associate 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 Assistant Professor (Lecturer in Israeli system), Department of Life Sciences, Ben Gurion University, Beer Sheva, Israel

Joohyoung Lee (2003-2005): Currently with the Environmental Division, Samsung Corporation, Seoul Korea.

PUBLICATIONS

Books

- 1) Schmitz, O.J. 2007. Ecology and Ecosystem Conservation. Island Press—Foundations of Contemporary Environmental Studies series, J.G. Speth (editor).
- 2) Schmitz, O.J. Resolving Ecosystem Complexity. Princeton University Press Monographs in Population Biology. In press—expected release July 2010.

Articles in Peer-reviewed Journals

- 3) Barton, B.T., A.P. Beckerman, and O.J. Schmitz. 2009. Climate change affects direct and indirect interactions in an old-field food web. *Ecology* 90:2346–2351.
- 4) Barton, B.T. and O.J. Schmitz. 2009. Experimental warming transforms multiple predator effects in a grassland food web. *Ecology Letters* 12:1317-1325.
- 5) Jones, H.P. and O.J. Schmitz. 2009. Rapid recovery of damaged ecosystems. *PLoS One* 4: e5653. doi:10.1371/journal.pone.0005653. **Featured on National Public Radio (NPR) News; Research Highlights in the journal Nature 459 (755 (11 June 2009) | doi:10.1038/459755a; F1000 Biology <http://www.f1000biology.com/article/id/1161091/evaluation>**
- 6) Schmitz, O.J. 2009. Effects of predator functional diversity on grassland ecosystem function. *Ecology* 90:2339–2345.

- 7) Filin, I, Schmitz, O.J. and O. Ovadia. 2008. Consequences of individual size variation on the survival of an insect herbivore: An analytical model and an experimental field testing using the Red-legged Grasshopper. *Journal of Orthopteran Research* 17:283-291.
- 8) Peckarsky, B.L., P.A. Abrams, D. Bolnick, J.H. Grabowski, B. Luttbeg, J.L. Orrock, S.D. Peacor, E.L. Preisser, O.J. Schmitz and G.C. Trussell. 2008. Revisiting the classics: Considering non-consumptive effects in textbook examples of predator-prey interactions. *Ecology* 89:2416-2425.
- 9) Schmitz, O.J. 2008. Effects of predator hunting mode on grassland ecosystem function. *Science* 319:952-954. **Featured on National Public Radio (NPR) Living on Earth program and Canadian Broadcasting Corporation (CBC) Quriks and Quarks program.**
- 10) Schmitz, O.J. 2008. Herbivory from individuals to ecosystems. *Annual Review of Ecology, Evolution and Systematics* 39:133-152.
- 11) Schmitz, O.J. 2008. Predators avoiding predation. *Proceedings of the National Academy of Science USA* 105:14749-14750.
- 12) Schmitz, O.J., J.H. Grabowski, B.L. Peckarsky, E.L. Preisser, G.C. Trussell, and J.R. Vonesh. 2008. From individuals to ecosystems: toward an integration of evolutionary and ecosystem ecology. *Ecology* 89:2436-2445.
- 13) Ovadia, O., H. zu Dohna, G. Booth and O.J. Schmitz. 2007. Consequences of body size variation among herbivores on the strength of plant-herbivore interactions in a seasonal environment. *Ecological Modelling* 206:119-130.
- 14) Preisser, E.L., J.L. Orrock, and O.J. Schmitz. 2007. Predator hunting mode and habitat domain affect the strength of non-consumptive effects in predator-prey interactions. *Ecology* 88: 2744-2751.
- 15) Schmitz O.J. 2007. Predator diversity and trophic interactions. *Ecology* 88:2415-2426.
- 16) Koellner, T. and O.J. Schmitz. 2006. Biodiversity, ecosystem function and investment risk. *BioScience* 26:977-985.
- 17) Lee, J, Marshall, J.C., Schmitz O.J. and A. Caccone. 2006. Genetic divergence of Connecticut *Melanoplus femurrubrum* populations. *Journal of Heredity* 97:290-293.
- 18) Schmitz, O.J. 2006. Predators have large effects on ecosystem properties by changing plant diversity not plant biomass. *Ecology* 86:1432-1437. **Featured on F1000 Biology**
<http://www.f1000biology.com/article/id/1033531/evaluation>.
- 19) Schmitz, O.J., E.L. Kalies and M.G. Booth. 2006. Alternative dynamic regimes and trophic control of plant succession. *Ecosystems* 9:659-672.
- 20) Gear, J. and O.J. Schmitz. 2005. Linking spatial distribution of a forest floor insect to grouping behavior and scattering effects of predators. *Ecology* 86:960-971.
- 21) Schmitz, O.J. 2005. Scaling from plot experiments to landscapes: studying grasshoppers to inform forest ecosystem management. *Oecologia* 145:225-234.
- 22) Krivan, V. and O.J. Schmitz. 2004. Trait and density mediated indirect interactions in simple food webs. *Oikos* 107:239-250.

- 23) Ovadia, O. and O.J. Schmitz. 2004. Scaling from individuals to food webs: the role of size-dependent predation risk. *Israel Journal of Zoology* 50:273-298.
- 24) Ovadia, O. and O.J. Schmitz. 2004. Weather variation and trophic interaction strength: sorting the signal from the noise. *Oecologia* 140:398-406.
- 25) Schmitz, O.J. 2004. Perturbation and abrupt shift in trophic control of biodiversity and productivity. *Ecology Letters* 7: 403-409.
- 26) Schmitz, O.J., V. Krivan and O. Ovadia. 2004. Trophic cascades: the primacy of trait-mediated indirect interactions. *Ecology Letters* 7:153-163.
- 27) Bolker, B., M. Holyoak, V. Krivan, L. Rowe and O.J. Schmitz. 2003. Connecting theoretical and empirical studies of trait-mediated interactions. *Ecology* 84:1101-1114.
- 28) Burns, C.E., K.M. Johnston and O.J. Schmitz. 2003. Global climate change and mammalian species diversity in US National Parks. *Proceedings of the National Academy of Sciences USA* 100: 11474-11477.
- 29) Krivan, V. and O.J. Schmitz. 2003. Adaptive foraging and flexible food web topology. *Evolutionary Ecology Research* 5:623-652.
- 30) Schmitz, O.J. 2003. Top predator control of plant biodiversity and productivity in an old field ecosystem. *Ecology Letters* 6:156-163.
- 31) Schmitz, O.J. E. Post, C.E. Burns and K.M. Johnston. 2003. Ecosystem responses to global climate change: moving beyond color-mapping. *BioScience* 53: 1199-1205.
- 32) Ovadia, O. and O.J. Schmitz. 2002. Linking individuals with ecosystems: experimentally identifying the relevant organizational scale for predicting trophic abundances. *Proceedings of the National Academy of Sciences USA* 99:12927-12931.
- 33) Schmitz, O.J. and L. Sokol-Hessner. 2002. Linearity in the aggregate effects of multiple predators on a food web. *Ecology Letters* 5:168-172.
- 34) Sokol-Hessner, L. and O.J. Schmitz. 2002. Aggregate effects of multiple predator species on a shared prey. *Ecology* 83:2367-2372.
- 35) Schmitz O.J 2001. From interesting details to dynamical relevance: on effective use of empirical insights in theory development. *Oikos* 94:39-50. (Invited contribution: Proceedings of the Nordic Oikos Seminar "Costs and Gains of Recent Progress in Ecology" Hällnäs, Sweden, October 1999)
- 36) Schmitz, O.J. and K.B. Suttle. 2001. Effects of top predator species on the nature of indirect effects in an old field food web. *Ecology* 82: 2072-2081
- 37) Luttbeg, B. and O.J. Schmitz. 2000. Predator and prey models with flexible individual behavior and imperfect information. *American Naturalist* 155:669-683.
- 38) Schmitz, O.J. 2000. Combining field experiments with individual-based modeling to identify the dynamically-relevant organizational scale in a field system. *Oikos* 89:471-484.

- 39) Schmitz, O.J., P. Hambäck and A.P. Beckerman. 2000. Trophic cascades in terrestrial systems: a review of the effect of top predator removals on plants. *American Naturalist* 155:141-153.
- 40) Abrams, P.A. and O.J. Schmitz. 1999. The effect of risk of mortality on the foraging behavior of animals faced with time- and gut-capacity constraints. *Evolutionary Ecology Research* 1:285-301.
- 41) Schmitz, O.J. 1998. Direct and indirect effects of predation and predation risk in old-field interaction webs. *American Naturalist* 151:327-342.
- 42) Schmitz, O.J., J.L. Cohon, K.D. Rothley and A.P. Beckerman. 1998. Reconciling variability and optimal behavior using multiple criteria in optimality models. *Evolutionary Ecology* 12: 73-94.
- 43) Uriarte, M. and O.J. Schmitz. 1998. Trophic control across a natural productivity gradient with sap-feeding herbivores. *Oikos* 82:552-560.
- 44) Beckerman, A.P., M. Uriarte and O.J. Schmitz. 1997. Experimental evidence for a behavior-mediated trophic cascade in a terrestrial food chain. *Proceedings of the National Academy of Sciences USA* 94: 10735-10738.
- 45) Johnston, K.M. and O.J. Schmitz. 1997. Influence of climate change on the distribution of selected wildlife species within the continental USA. *Global Change Biology* 3: 531-544.
- 46) Rothley, K.D., O.J. Schmitz and J.L. Cohon. 1997. Foraging to balance conflicting demands: novel insights from grasshoppers under predation risk. *Behavioral Ecology* 8: 551-559.
- 47) Schmitz, O.J. 1997. Press perturbations and the predictability of ecological interactions in a food web. *Ecology* 78: 55-69.
- 48) Schmitz, O.J., A.P. Beckerman and S.Litman. 1997. Functional responses of adaptive consumers and community stability with emphasis on the dynamics of plant-herbivore systems. *Evolutionary Ecology* 11:773-784.
- 49) Schmitz, O.J., A.P. Beckerman and K. O'Brien. 1997. Behaviorally-mediated trophic cascades: effects of predation risk on food web interactions. *Ecology* 78:1388-1399.
- 50) Schmitz, O.J. and G. Booth. 1997. Modeling food web complexity: the consequences of individual-based, spatially explicit behavioral ecology on trophic interactions. *Evolutionary Ecology* 11:379-398.
- 51) Johnson, K.H., K.A. Vogt, H.J. Clark, O.J. Schmitz and D.J. Vogt. 1996 Biodiversity and the productivity and stability of ecosystems. *Trends in Ecology and Evolution* 11:372-377.
- 52) Schmitz, O.J. 1995. Functional responses of optimal consumers and the potential for regulation of resource populations. *Wildlife Research* 22:101-113.
- 53) Sinclair, A.R.E., D.S. Hik, O.J. Schmitz, G.G.E. Scudder, D.H. Turpin and N.C. Larter. 1995 Biodiversity and the need for habitat renewal. *Ecological Applications* 5:579-587.
- 54) Schmitz, O.J. 1994. Resource edibility and trophic exploitation in an old-field food web. *Proceedings of the National Academy of Sciences USA* 91:5364-5367.

- 55) Schmitz, O.J. and T.D. Nudds. 1994. Parasite-mediated competition in deer and moose: how strong is the effect of meningeal worm on moose? *Ecological Applications* 4:91-103.
- 56) Belovsky, G.E. and O.J. Schmitz. 1994. Plant defenses and optimal foraging by mammalian herbivores. *Journal of Mammalogy* 75:816-832.
- 57) Schmitz, O.J. 1993. Trophic exploitation in grassland food chains: simple models and a field experiment. *Oecologia* 93:327-335
- 58) Belovsky, G.E. and O.J. Schmitz 1993. Owen-Smith's evaluation of herbivore foraging models: what is constraining? *Evolutionary Ecology* 7: 525-529.
- 59) Schmitz, O.J. 1992. Exploitation in model food chains with mechanistic consumer-resource dynamics. *Theoretical Population Biology* 41:161-183.
- 60) Schmitz, O.J. 1992. Optimal diet selection by white-tailed deer: balancing reproduction with starvation risk. *Evolutionary Ecology* 6:125-141.
- 61) Schmitz, O.J., D.S. Hik and A.R.E. Sinclair. 1992. Plant chemical defense and twig selection by snowshoe hare: an optimal foraging perspective. *Oikos* 65:295-300.
- 62) Schmitz, O.J. 1991. Thermal constraints and optimization of winter feeding and habitat choice by white-tailed deer. *Holarctic Ecology* 14:104-111.
- 63) Schmitz, O.J. and M.E. Ritchie. 1991. Optimal diet selection with variable nutrient intake:balancing reproduction with starvation risk. *Theoretical Population Biology* 39:100-114.
- 64) Belovsky, G.E., O.J. Schmitz, J.B. Slade and T.J. Dawson. 1991. Effects of thorns and spines on Australian herbivores of different body sizes. *Oecologia* 88:520-528
- 65) Schmitz, O.J. 1990. Wildlife management implications of foraging theory:evaluating deer supplemental feeding. *Journal of Wildlife Management* 54:522-532.
- 66) Lavigne, D.M. and O.J. Schmitz. 1990. Global warming and increasing population density: a prescription for seal plagues. *Marine Pollution Bulletin* 21:280-284.
- 67) Schmitz, O.J. and D.M. Lavigne. 1987. Factors affecting body size in sympatric Ontario Canis. *Journal of Mammalogy* 68:92-99.
- 68) Lavigne, D.M., S. Innes, G.W. Worthy, K.M. Kovacs, O.J. Schmitz and J.P. Hickie. 1986. Metabolic rates of seals and whales. *Canadian Journal of Zoology* 64:279-284
- 69) Schmitz, O.J. and G.B. Kolenosky. 1985. Wolves and coyotes in Ontario: morphological relationships and origins. *Canadian Journal of Zoology* 63:1130-1137.
- 70) Schmitz, O.J. and G.B. Kolenosky. 1985. Hybridization between wolf and coyote in captivity. *Journal of Mammalogy* 66:402-405.
- 71) Schmitz, O.J. and D.M. Lavigne. 1984. Intrinsic rate of increase, body size and specific metabolic rate in marine mammals. *Oecologia* 62:305-309.

Peer-Reviewed Book Chapters

- 72) Seto, K., S. Bringezu, R. deGroot, K. Erb, T. Graedel, N. Ramankutty, A. Reenberg, O. Schmitz and D. Skole. 2009. Land: stocks, flows and prospects. In: T. Graedel and E. van der Voet (eds.) Measuring Sustainability. Strüngman Forum Report, volume 4: Cambridge, MIT Press (due out November 2009).
- 73) Schmitz O.J. 2009. Perspectives on sustainability of ecosystem services and functions. In: T. Graedel and E. van der Voet (eds.) Measuring Sustainability. Strüngman Forum Report, volume 4: Cambridge, MIT Press (due out November 2009).
- 74) Schmitz O.J., 2005. Behavior of predators and prey and links with population level processes. Pages 256-278 In: P. Barbosa and I. Castellanos (eds.) Ecology of Predator-Prey Interactions: Oxford University Press.
- 75) Schmitz O.J., 2004. From mesocosms to the field: the role and value of cage experiments in understanding top-down effects in ecosystems. Pages 277-302 In: W.W. Weisser and E. Siemann (eds.) Insects and Ecosystem Function, Springer Series in Ecological Studies. Springer-Verlag, Berlin
- 76) Belovsky, G.E., J.M. Fryxell and O.J. Schmitz. 1999. Natural selection and herbivore nutrition: optimal foraging theory and what it tells us about the structure of ecological communities. 5th International Symposium on the Nutrition of Herbivores. American Society of Animal Science.
- 77) Schmitz, O.J. and A.R.E. Sinclair 1997. Rethinking the role of deer in forest ecosystem dynamics. In: W.J. McShea, J. Rappole and B. Underwood (eds.) The Science of Overabundance: Deer Ecology and Population Management. Smithsonian Press.
- 78) Belovsky, G.E. and O.J. Schmitz. 1991. Mammalian herbivore optimal foraging and the role of plant defenses. In R.T. Palo and C.T. Robbins (eds.) Plant chemical defenses and mammalian herbivory. CRC Press, Boca Raton.

Peer Reviewed Invited Encyclopedia Contributions

- 79) Schmitz O.J. 2007. Indirect effects in communities and ecosystems. In: S. Levin (ed.) The Princeton Guide to Ecology.
- 80) Schmitz, O.J. and A.P. Beckerman. 2007. Food webs. In: Encyclopedia of Life Sciences. John Wiley & Sons, Ltd: Chichester <http://www.els.net/> [DOI: 10.1002/9780470015902.a0003740]
- 81) Schmitz, O.J., H.P. Jones and B.T. Barton. 2007. Scavengers. In: S.E. Jorgensen (ed.) Encyclopedia of Ecology.
- 82) Vogt, K.A., O.J. Schmitz, K.H. Beard, J.L. O'Hara and M. Booth. 2000. Conservation biology — contemporary issues. In: S Levin (ed.) Encyclopedia of Biodiversity, Academic Press

Scientific Essays

- 83) Schmitz, O.J., F.R. Adler and A.A. Agrawal. 2003. Linking Individual-scale trait plasticity to community dynamics (Introduction to a Special Feature) Ecology 84: 1081-1082.

- 84) Schmitz, O.J. 1997. Commemorating 30 years of optimal foraging theory. *Evolutionary Ecology* 11:631-632.

Book Reviews

- 85) Schmitz, O.J. 2005. Pushing the boundaries of ecosystems. *Essay review of: Food Webs at the Landscape Level* by G.A. Polis, M.E. Power and G.R. Huxel. *Perspectives on Science and Medicine* 48:301-306
- 86) Schmitz, O.J. 2001. Review of *Partnerships for Protection: New Strategies for Planning and Management of Protected Areas* edited by S. Stolton and N. Dudley. *Natural Resources Forum*.
- 87) Schmitz, O.J. 1993. Review of *Mammoths Mastodons and Elephants: biology, behavior and the fossil record* by G. Haynes. *Journal of Evolutionary Biology* 6:147-148.

Articles in Review

Hawlana, D., H. Kress, E. Dufresne, and O.J. Schmitz. Grasshoppers Modify their Behavior to Jump Faster and Further when Confronted with Chronic Predation Risk.

Additional publications supported by funding to my lab

Booth, G. 1997. Gecko: a continuous 2-D world for ecological modeling. *Artificial Life* 3:147-163.

*Rothley, K.D. 1999. Designing bioreserve networks to satisfy multiple conflicting demands. *Ecological Applications* 9:741-750.

*Beckerman, A.P. 2000. Counterintuitive outcomes of interspecific competition between two grasshopper species along a resource gradient. *Ecology* 81:948-957.

Hambäck, P. 2001. Direct and indirect effects of herbivory: Feeding by spittlebugs affects pollinator visitation rates and seed set of *Rudbeckia hirta*. *Ecoscience* 8: 45-50.

*Koenig, S.E. 2001. The breeding biology of Black-billed Parrot *Amazona agilis* and Yellow-billed Parrot *Amazona collaria* in Cockpit Country, Jamaica. *Bird Conservation International* 11: 205-225.

*Rothley, K.D. 2001. Manipulative, multi-standard test of a white-tailed deer habitat suitability model. *Journal of Wildlife Management* 65:953-963.

*Beckerman, A.P. 2002. The distribution of *Melanoplus femurrubrum*,: fear and freezing in Connecticut *Oikos* 99:131-140.

*Rothley, K.D. 2002. Use of multiobjective optimization models to examine behavioural trade-offs of white-tailed deer habitat use in forest harvesting experiments. *Canadian Journal of Forest Research* 32:1275-1284.

Ovadia, O. and H. zu Dohna. 2003. The effect of intra- and inter-specific aggression on patch residence time in Negev Desert gerbils: a competing risk analysis. *Behavioral Ecology* 14:583-591.

Ovadia, O. 2003. Ranking hotspots of varying sizes: a lesson from the nonlinearity of the species-area relationship. *Conservation Biology* 17:1-3.

*Booth, M.G. 2004. Micorrhizal networks mediate overstorey-understorey competition in a temperate forest. *Ecology Letters* 7: 538-546.

*Burns, C.E., B.J. Goodwin and R.S. Ostfeld 2005. A prescription for longer life? Bot fly parasitism of the white-footed mouse. *Ecology* 86:753–761.

*Burns, C.E. 2005. Behavioral ecology of disturbed landscapes: The response of territorial animals to relocation. *Behavioral Ecology* 16:898-905.

*Gear, J. and C.E. Burns. 2007. Evaluating effects of low quality habitats on regional population growth in *Peromyscus leucopus*: Insights from field-parameterized spatial matrix models. *Landscape Ecology* 22: 45-60.

*Burns, C.E. and J. Gear. 2008. Effects of habitat loss on white-footed mice: Testing matrix model predictions with landscape-scale perturbation experiments. *Landscape Ecology* 17:817-831.

Stamieszkin, K. 2009. Management of a marine protected area for sustainability and conflict resolution: lessons from Loreto Bay National Park (Baja California Sur, Mexico). *Ocean and Coastal Management* (in press). Based on Environmental Studies senior undergraduate thesis research under my supervision.

**Articles arising from my students' doctoral dissertation work. I do not require that doctoral students list me as a coauthor on publications arising from their dissertation work.*

RESEARCH GRANTS & CONTRACTS

2009-2010	Dissertation Improvement Grant of Brandon Barton: How will climate change affect trophic interactions? NSF DEB 0910047 \$13,000.
2008-2012	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--a project that will provide users in the 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	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 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

INVITED LECTURESHIPS

- 2009 Ledermann Lecture in Natural History and Conservation Biology—College of the Environment and Life Sciences, University of Rhode Island
- 2005 The Walton Lecture Series—Mountain Lake Biological Station, Virginia, USA
- 1999 The Nordic Oikos Society--Advanced course on the role of empiricism and computational and analytical modeling in generating scientific hypotheses., Umeå, Sweden

CONFERENCE SYMPOSIA ORGANIZED

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. 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

- 2010 Division of Biology, University of California—San Diego
- 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
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
- 1992 Department of Fisheries and Wildlife, Utah State University