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Department of Biological Sciences
Ohio University
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PERSONAL

Place of Birth: Saskatoon, SK

Citizenship: Canadian

EDUCATION

1994-1999 PhD	University of Guelph (Zoology)
1999-2001 MA	University of Guelph (Philosophy)
1991-1993 MSc	University of Calgary (Biology)
1988-1991 BSc	University of Guelph (Biology)
1986-1988	University of Regina (Philosophy)

PROFESSIONAL POSITIONS

2003 -	Assistant Professor	Dept. Biological Science/ Quantitative Biology Institute Ohio University, Athens, OH
2001-2003	Postdoctoral Fellow	Dept. Environmental Science & Policy University of California, Davis, CA
1999-2003	Postdoctoral Fellow	Dept. Ecology & Evolutionary Biology University of Connecticut, Storrs, CT
1997-1998	Editorial Assistant	Canadian Journal of Fisheries and Aquatic Sciences. Guelph, ON
1993-1994	Research Assistant	Dept. Biology University of Regina, Regina, SK

SELECTED AWARDS AND HONORS

2002-2003	Center for Population Biology Postdoctoral Associate (UCDavis)
2001-2003	NSERC postdoctoral fellowship (\$70,000)
1999	University of Guelph Graduate Scholarship (\$2000)
1997-1998	IODE War memorial Fellowship (\$10,000)
1996-1997	IODE Woman in Science Fellowship (\$7500)
1994-1996	NSERC Post-graduate scholarship B (PGS B) (\$34,800)
1991-1993	NSERC Post-graduate scholarship A (PGS A) (\$31,600)

FUNDING

A Parallel Processing Facility for Complex Biological Systems, Ohio Supercomputer Center, S. Hooper (P.I.), R. DiCaprio, E. Peterson, W. Currie and K. Cuddington. \$100,000 (Hardware value). 03/2004.

Ecosystem Engineers, National Center for Ecological Analysis and Synthesis. K. Cuddington (chair) & J. Byers \$58,000, 03/2004-12/2005. No cost extension until 01/2007.

A greenhouse for plant-animal experiments, 1804 Baker Fund, Ohio University. K. Cuddington (PI), & K. Johnson. \$30,000, 07/2004

Predicting the effects of diffusion-limitation in a model predator-prey system, National Science Foundation, Division of Ecology. K. Cuddington (P.I.). \$378,978, 09/2005 - 08/2009.

PUBLICATIONS

- Cuddington, K.** Byers, J. Hastings, A. and W. Wilson (eds.) *Ecosystem engineers: Plants to protists*. Elsevier/Academic Press, in press. Includes: **Cuddington, K.** Ecosystem engineering: Utility, contention and progress, **Cuddington, K.** and A. Hastings. Balancing the engineer-environment equation: the current legacy, and Buchman, N., **Cuddington, K.** and J. Lambrinos. A historical perspective on ecosystem engineering.
- Zimmerman, C. and **K. Cuddington**. Ambiguous, circular and polysemous: Students' definitions of the "balance of nature" metaphor. *Public Understanding of Science*, in press.
- Hastings, A., Byers, J., Crooks, J., **Cuddington, K.**, Jones, C., Lambrinos, J., Talley, T., and W. Wilson. Ecosystem engineering in space and time. (2007). *Ecology Letters* 10: 153-164.
- Byers, J.E., **Cuddington, K.**, Jones, C.G., Talley, T.S., Hastings, A., Lambrinos, J.G., and W. Wilson. (2006). Using ecosystem engineers to restore ecological systems. *Trends in Ecology and Evolution* 21:493-500.
- Cuddington, K.** and B. Beisner (eds.) (2005). *Ecological Paradigms Lost: Routes to Theory Change*. Elsevier/Academic Press. Includes: Beisner, B. and **K. Cuddington**. Why a history of ecology? An Introduction. pp 1-6. **Cuddington, K.** and B. Beisner. Kuhnian paradigms Lost: Embracing the Pluralism of Ecological Theory. pp 419-426.
- Green, J.L., Hastings, A., Arzberger, P., Ayala, F., Cottingham, L., **Cuddington, K.**, Davis, F., Dunne, J., Fortin, M.J., Gerber, L., Neubert, M. (2005). Complexity in ecology and conservation: mathematical, statistical, and computational challenges. *BioScience* 55:501-510.
- Hastings, A., **Cuddington, K.**, Dugaw, C., Elmendorf, S., Freestone, A. Harrison, S. Holland, M., Lambrinos, J. Malvadkar, R. Melbourne, B. Moore, K. Taylor, C. and D. Thomson (2005). The spatial spread of invasions: new developments in theory and evidence. *Ecology Letters* 891-101.
- Sabo, J. L., Beisner, B., Berlow, E. , **Cuddington, K.**, Hastings, A., Kokkoris, G., Koen-Alonso, M., McCann, K., Melian, C., Moore, J. (2005). Population dynamics and food web structure – the dual role of reductionism and holism in advancing food web science. In: *Multispecies assemblages, ecosystem development, and environmental change*. P. C. deRuiter, J. C. Moore, and V. Wolters (eds.). Academic Press, San Diego, CA.
- Cuddington, K.** and A. Hastings. (2004). Invasive engineers. *Ecological Modelling* 178: 335-347.
- Cuddington, K.** and M. Ruse (2004). Darwin, biodiversity and the fossil record. In *Philosophy and Biodiversity*. Markku Oksanen and Juhanie Pietarinen (eds.). Cambridge University Press.
- Beisner, B., Haydon, D.T. and **K. Cuddington** (2003). Alternative conceptions of alternative stable states in ecology. *Frontiers in Ecology and the Environment* 1: 376-382.
- Cuddington, K.** and P. Yodzis. (2002) Predator-prey populations and movement in fractal environments. *American Naturalist* 160: 119-134.
- Cuddington, K.** (2001) The "Balance of Nature" metaphor and equilibrium in population ecology. *Biology & Philosophy* 16: 463-479.
- Cuddington, K.** and P. Yodzis. (2000) Diffusion-limited predator-prey dynamics in Euclidean environments: An allometric individual-based model. *Theoretical Population Biology* 58: 259-278.
- Cuddington, K.** and P.R. Leavitt. (1999) An individual-based model of pigment flux in lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 56: 1964-1977.
- Cuddington, K.** and P. Yodzis. (1999) Black noise and population persistence. *Proceedings of the Royal Society B* 266: 969-973.
- Forbes, M.R., Alisauskas, R.T., McLaughlin, J.D. and **K.M. Cuddington**. (1999) Explaining co-occurrence among helminth species of lesser snow geese (*Chen caerulescens*) during their winter and spring migration. *Oecologia* 120: 613-620.
- Cuddington, K.** and E. McCauley. (1994) Food-dependent aggregation and mobility of the water fleas *Ceriodaphnia dubia* and *Daphnia pulex*. *Canadian Journal of Zoology* 72:1217-1226.

THESES AND DISSERTATION

- Cuddington, K.M. (2001) . Math, meaning and metaphor in population ecology. MA thesis. Department of Philosophy, University of Guelph. (Supervisor: Michael Ruse)
- Cuddington, K.M. (1999). Ants in a labyrinth: Diffusion-limited population dynamics in spatially complex environments. Doctoral dissertation. Department of Zoology, University of Guelph. (Supervisor: Peter Yodzis)
- Dibble, K.M. (1993). Food-dependent aggregation, mobility and dynamics of *Ceriodaphnia dubia* and *Daphnia pulex*. MSc thesis. Department of Biological Sciences, University of Calgary. (Supervisor: Ed McCauley)

INVITED PRESENTATIONS

- 2006 Department of Biology, University of Western Ontario, London, ON
Department of Biology, Memorial University, St. John's, NFLD
- 2004 Gordon Conference in Theoretical Biology and Biomathematics, Tilton School, NH
- 2003 Department of Mathematics, Ohio University, Athens, OH
- 2002 Department of Biology, Carleton University, Ottawa, ON
Department of Biology, Ohio University, Athens, OH
Department of Biological Sciences, University of Calgary, Calgary, AB
- 2001 Department of Biology, Georgia Tech, Atlanta, GA
Department of Biology, San Diego State, San Diego, CA
- 2000 Department of Zoology, University of Toronto, Toronto, ON
Department of Biology, Emory University, Atlanta, GA
- 1999 Department of Ecology & Evolutionary Biology, University of Connecticut, Storrs, CT
Population Biology Section, University of Amsterdam, Amsterdam, NL
- 1998 Department of Zoology, University of Guelph, Guelph, ON
- 1997 Department of Biology, Duke University, Durham, NC

CONFERENCE PRESENTATIONS

- Cuddington, K.**, Wilson, W. and A. Hastings. Ecosystem engineers: runaway growth and multiple basins of attraction. Ecological Society of America. Memphis, Tennessee. August 6-11, 2006.
- Cuddington, K.** and D. Hayden. Using state transitions to measure community stability. Ecological Society of America. Montreal, Quebec. August 7-12, 2005.
- Cuddington, K.** and B. Beisner. Rhetorical uses of philosophical language in ecology. International Society for the History, Social Science and Philosophy of Biology. Guelph, Ontario. July 13-17, 2005.
- Zimmerman, C., & Boemler, E., and **Cuddington, K.** Students' reasoning about the consequences of ecosystem disturbances. American Educational Research Association (AERA), Montréal, Quebec. April 11-15, 2005
- Cuddington, K.**, Wilson, W. and A. Hastings. A simple model of an ecosystem engineer. Young researchers workshop, Mathematical Biology Institute, Ohio State University, Columbus, Ohio. March, 2005.
- Cuddington, K.** and A. Hastings. Environmental noise and invasive spread. Ecological Society of America (ESA), Portland, Oregon. August 1-6, 2004.
- Zimmerman, C., and **Cuddington, K.** Students' understanding of the "balance of nature." American Educational Research Association (AERA), Chicago, Illinois. April 21-25, 2003.
- Cuddington, K.** The evolution of ecological theory. Ecological Society of America (ESA), Tucson, Arizona. August 4-9, 2002.

CONFERENCE PRESENTATIONS CONTINUED

- Zimmerman, C. and **K. Cuddington**. Ecology students' conception of the "balance of nature."
Ecological Society of America (ESA), Tucson, Arizona. August 4-9, 2002 (poster).
- Cuddington, K.** Turchin, P. and J. Reeve. Small scale spatio-temporal dynamics of southern pine beetles and clerids. Ecological Society of America (ESA), Madison, Wisconsin. August 5-10, 2001.
- Cuddington, K.** Species extinctions and biodiversity. The International Society for History, Philosophy and Social Studies in Biology (ISHPSSB), Quinnipiac College, Connecticut. July 18-20, 2001.
- Cuddington, K.** Balance of nature: Theory or paradigm?. Philosophy of Science Association (PSA), Vancouver, British Columbia. November 2-6, 2000.
- Cuddington, K.** and P. Yodzis. Black noise and population persistence. Ecological Society of America (ESA), Baltimore, Maryland. August 2-6, 1998
- Currie W.J.S. and **K. Cuddington**. The importance of patchy distributions for predator foraging success: zooplankton in a multifractal field. ASLO/ESA Meeting, St. Louis, Missouri, USA. June 7-12, 1998 (poster).
- Cuddington, K.** and P. Yodzis. An allometric, individual-based model of spatial heterogeneity and predator-prey dynamics. Ecological Society of America (ESA), Albuquerque, New Mexico. August 10-14, 1997
- Cuddington, K.** Support for non-equilibrium approaches to ecological theory provided by the equilibrium paradigm. The International Society for History, Philosophy and Social Studies in Biology (ISHPSSB), Seattle, Washington. July 16-20, 1997.
- Cuddington, K.** and E. McCauley. Food-dependent aggregation, mobility and dynamics of *Ceriodaphnia dubia* and *Daphnia pulex*. Ecological Society of America (ESA), Knoxville, Tennessee. August 7-11, 1994.
- Cuddington, K.** and P. Leavitt. An individual-based model of pigment flux in lakes. American Society of Limnology and Oceanography (ASLO), Miami, Florida.

TEACHING EXPERIENCE

2004-	Population Ecology, Introduction to Ecology and Evolution and Conservation Biology - Assistant Professor (lectures, computer lab, grading)	Dept Biol. Sci. Ohio University
2000	Introductory Ecology - Lecturer (team-taught: 50% lectures, grading, web pages)	Dept Ecology & Evol. Biology University of Connecticut
1996-1998	Natural Resource policy - Teaching Assistant (guiding student research and grading essays)	Dept. Zoology University of Guelph
1996-1997	Introductory Ecology - Teaching Assistant (supervising labs, aiding students in experimental design and data analysis, grading lab reports)	Dept. Botany University of Guelph
1994-1996	Community ecology - Teaching Assistant (composing and delivering weekly seminar in mathematical ecology)	Dept. Zoology University of Guelph
1988	Naturalist Prairie Wildlife (creation and implementation of educational programs explaining prairie biology)	Interpretation Centre Webb, SK

GUEST LECTURES

Selection for mean fitness and evolutionarily stable strategies. Life history strategies. Competition models. Predation models. Dispersal and Metapopulation models. Winter 2003.
Population Biology. Department of Environmental Science and Policy, University of California - Davis.

GUEST LECTURES CONTINUED

Bifurcations in ODE's of ecological systems. Fall 2002. Theoretical Ecology. Department of Environmental Science and Policy, University of California – Davis.

Using individual-based models in theoretical ecology: pitfalls and progress Winter 1999. Theoretical Ecology, Department of Zoology, University of Guelph

Determining the effects of harvesting or other perturbations on communities (Press perturbations). Fall 1998. Community Ecology, Department of Zoology, University of Guelph.

Analysis of the stability of predator-prey populations. Fall 1997. Community Ecology, Department of Zoology, University of Guelph.

How to write an essay . Fall 1997. Natural Resource Policy, Department of Zoology, University of Guelph

SYMPOSIA ORGANIZED

Peter Yodzis Colloquium in Fundamental Ecology. From Energetics to Foodwebs. April 24-25. 2004. University of Guelph, Guelph, ON. Organized by Kevin McCann and others.

Paradigms Lost: Theory Change in Ecology. August 10, 2002. Ecological Society of America (ESA) Annual meeting. Tucson, AZ. Organized by Kim Cuddington and Bea Beisner. Sponsored by the Theoretical Ecology section.

WORKSHOPS ATTENDED

Spatial Ecology. Mathematical Biosciences Institute (MBI), Ohio State University. April 3-6, 2006
First Young Researchers in Mathematical Ecology Workshop. Mathematical Biosciences Institute (MBI), Ohio State University. March 29 - April 1, 2005

Foodwebs. University of Giessen, DE. Nov. 13-16, 2003.

Spatio-temporal integro-difference equations. University of Wageningen, NL. April 18-27, 2001.

From individual to aggregation: Modeling animal grouping, Institute for Mathematics and its Applications (IMA), University of Minnesota. June 6-11, 1999.

Food web short course, Cornell/Woods Hole. June 18- July 15, 1995.

MANUSCRIPTS REVIEWED FOR:

American Naturalist, Canadian Journal of Fisheries and Aquatic Research, Canadian Journal of Zoology, Conservation Ecology, Ecology, Ecology Letters, Ecosystems, Journal of Theoretical Biology, Mathematical Biosciences, Nature, Proceedings of the Royal Society B, Theoretical Population Biology

GRANT PROPOSALS REVIEWED FOR:

National Geographic Society, National Science Foundation (NSF), United States Department of Agriculture (USDA)

NSF panel service: DEB Spring 2006

SOCIETY MEMBERSHIP AND SERVICE

2006 - Member, Society for Mathematical Biology (SMB)

2005 - 2007 Secretary, Theoretical ecology section (ESA)

1994 - Member, Ecological Society of America (ESA)

Member, International Society for the History, Philosophy and Social Science of Biology (IHSPSSB)

UNIVERSITY SERVICE

2003 - 2006 Ohio University, Alternate member, Faculty Senate,

2003 - 2005 Department of Biological Sciences, Ohio University
Facilities and space committee

Chair, greenhouse construction committee

Chair, social committee