

Education

Ph.D. Psychology, Biopsychology, January 2000

The Graduate School & University Center of The City University of New York

Dissertation Thesis: Mechanisms of dependent colony founding in the slave-maker ant, *Polyergus breviceps*.

M.A. Psychology, Biopsychology, June 1997

The Graduate School & University Center of The City University of New York

Master's Thesis: Effects of maternal separation and milk ingestion on the isolation distress response in rat pups.

B.A. Psychology, May 1992

New York University

Research Positions

The American Museum of Natural History, NY (1997 – 2000, 2007-present). Scientific Assistant. Curate, maintain, process collections of Heteroptera and other minor orders; georeference and database specimens.

The Ohio State University, OH (2003-2006). Post-doctoral Researcher. Research focus on the ecology of social parasite-host co-evolutionary interactions using laboratory and field experiments, behavioral observation, population censusing and microsatellite-DNA analysis. Oversaw all laboratory functioning; trained and managed undergraduate and work-study students, and research assistants.

Catholic University of Leuven, Belgium (2002-2003). Post-doctoral Researcher. Research focus on fertility regulation of cuticular chemistry and colony ergonomics; field studies in Malaysia and Costa Rica. Supervised a related comprehensive research program of a graduate student and trained laboratory members.

University of Helsinki, Finland (2000-2001). Post-doctoral Researcher. Research focus on the evolution of alternative dispersal strategies using the Finnish wood ant as a model. Work involved collaborations with chemical and histology laboratories in Italy and Belgium.

Research Appointments

The Ohio State University, OH (2005). Co-Principal Investigator, Department of Evolution, Ecology & Organismal Biology.

The American Museum of Natural History, NY (2003-2004). Associate, Division of Invertebrate Zoology.

Publications

Johnson, C.A., Phelan, L.P., & Herbers, J.M. Stealth and reproductive dominance in a rare parasitic ant. Accepted in *Animal Behaviour*

Johnson, C.A. Slave-maker ant competition for a shared host and the effect on coevolutionary dynamics. *Ecological Monographs* **78**:445-460.

Lommelen, E., **Johnson, C.A.**, Drijfhout, F.P., Billen, J., & Gobin, B. (2008) Egg marking in the queenless ant *Gnamptogenys striatula*: the source and mechanism. *Journal of Insect Physiology* **54**:727-392.

Herbers, J.M. & **Johnson, C.A.** (2007). Social structure and winter survival in acorn ants. *Oikos* **116**:829-835.

Johnson, C.A. & Herbers, J.M. (2006). Impact of parasite sympatry on the geographic mosaic of coevolution. *Ecology* **87**:382-394.

Lommelen, E., **Johnson, C.A.**, Drijfhout, F.P., Billen, J., Wenseleers, T. & Gobin, B. (2006). Cuticular hydrocarbons provide reliable cues of fertility in *Gnamptogenys striatula*. *Journal of Chemical Ecology* **32**:20023-2034.

O'Hara, B., Fowler, M.S., & **Johnson, C.A.** (2006). Why negatives should be viewed as positives. *Nature Correspondence* **439**:782 (non-refereed).

Johnson, C.A., Sundström, L., & Billen, J. (2005). Development of alary muscles in single- and multiple-queen populations of the wood ant *Formica truncorum*. *Annales Zoologici Fennici* **42**:225-234.

Johnson, C.A., Topoff, H., Vander Meer, R.K., & Lavine, B. (2005). Do these eggs smell funny to you?: A study of egg discrimination by hosts of a slave-maker ant. *Behavioral Ecology & Sociobiology* **57**:245-255.

Kotze, D.J., **Johnson, C.A.**, O'Hara, R.B., Vepsäläinen, K., & Fowler, M. (2004). The need for a journal of negative results in ecology & evolutionary biology. *Journal of Negative Results – Ecology & Evolutionary Biology* **1**:1-4.

Johnson, C.A., Lommelen, E., Allard, D. & Gobin, B. (2003). The emergence of collective foraging in the arboreal *Gnamptogenys menadensis*. *Naturwissenschaften*, **90**:332-336.

Johnson, C.A., Topoff, H., Vander Meer, R.K., & Lavine, B. (2002). Host queen killing by a slave-maker ant queen: when is a host queen worth attacking? *Animal Behaviour*, **64**:807-815.

Johnson, C.A., Vander Meer, R.K., & Lavine, B. (2001). Changes in the cuticular hydrocarbon patterns of a slave-maker queen after killing a *Formica* host queen. *Journal of Chemical Ecology*, **27**:1787-1804.

Johnson, C.A., Agosti, D., Delabie, J.H., Dumpert, K., Williams, D.J., von Tschirnhaus, M. & Maschwitz, U. (2001). *Acropyga* and *Azteca* ants with scale insects: 20 million years of intimate symbiosis. *American Museum Novitates*, **3335**:1-18.

Johnson, C.A. (2000). Responses of two potential host species to pupae of the obligatory slave-making ant, *Polyergus breviceps*. *Journal of Insect Behavior*, **13**:711-720.

Manuscripts in preparation (available upon request)

Slater, J. A., Gerasimos, C., Schuh, R. T., **Johnson, C. A.**, & Pedraza, P. Revision of *Laryngodus* Herrich-Schaeffer, an *Allocasuarina* feeder, with comments on the classification of Rhyparochromidae (Heteroptera: Lygaeoidea: Rhyparochromidae). Submitted *Systematic Entomology*.

Johnson, C.A. & Sundström, L. Cuticular chemistry of a facultatively polygynous ant: An interaction between colony social structure and dispersal phenotype. For *Behavioral Ecology & Sociobiology*.

Lommelen, E., Wenseleers, T., **Johnson, C.A.**, Billen, J., & Gobin, B. Reproductive regulation via chemical fertility signaling in the ant *Gnamptogenys striatula*. For *Animal Behavior*.

Johnson, C.A. & Eslava, D. Evolution of prudence in the slave-maker ant *Polyergus breviceps*: Limitations on raiding pupae of the sexual caste. For *Behavioral Ecology*.

Manuscript Reviewer for:

Animal Behavior, Annales Zoologici Fennici, Apidologie, Applied Soil Ecology, Behavioral Ecology, Behavioral Ecology & Sociobiology, Ecological Entomology, Ecology, Ethology, Ethology Ecology & Evolution, Insectes Sociaux, Journal of Insect Physiology, Journal of Negative Results – Ecology & Evolutionary Biology, Molecular Ecology, Naturwissenschaften, Proceedings of the Royal Society, Biological Sciences, Psychological Reports/Perceptual & Motor Skills

Grants

- Stiefel Foundation Small Grants for Scientific Research \$5000.00 (2008)
- Huyck Preserve Post Graduate Research Grant \$2000.00 (2008)
- Highlands Biological Station, Grant-in-Aid of Research \$800.00 (2008)
- Spatial Ecology Visitor's Programme, University of Helsinki \$2,400 (2004)
- NAS International Union for the Study of Social Insects Travel Grant to Japan \$1,350 (2002)
- Animal Behavior Society Student Research Grant \$980 (1997)
- Sigma Xi, Grants-in-aid of Research \$1,000 (1997)
- Tithe Funds, Biopsychology, GSUC-CUNY \$3,000 (1997)
- Theodore Roosevelt Memorial Fund, AMNH \$1,200 (1995, 1997)
- T.C. Schneirla Fund \$600 (1997)
- Southwestern Research Station Student Support Fund, AMNH \$600 (1997)
- Helena Rubenstein Fund, GSUC-CUNY \$500 (1995)

Fellowships & Awards

- Robert Thompson Award for Research & Academic Excellence, Biopsychology, GSUC-CUNY (1998)
- President's Student Award, GSUC-CUNY (1997)
- University Fellowship, GSUC-CUNY (1997)
- Alumni Association Dissertation Support Fund, GSUC-CUNY (1994-1997)
- University Fellowship, GSUC-CUNY (1993-1995)
- University Honors Scholar/Founders Day Honors, New York University (1992)
- Alpha Sigma Lambda, New York University (1991)
- Delta Phi Alpha – Deutsche Ehrenverbindung, New York University (1991)
- Award for Academic Excellence, New York University (1988, 1990)

Invited Seminars

Johnson, C.A. (2008). Ecology of slave-maker ants & their hosts: The effect of parasite and host range on co-evolutionary trajectories. Huyck Preserve, Rensselaerville, NY.

Johnson, C.A. (2006). The chemical and competition ecology of ant social parasites. Department of Evolution, Ecology and Organismal Biology. The Ohio State University, Columbus, OH.

Johnson, C.A. (2005). Impact of parasite sympatry on the geographic mosaic of coevolution. Department of Entomology. Purdue University, West Lafayette, IN.

Johnson, C.A. (2005). Social organization in ants – Outside the model: social parasitism, polygyny, & reproductive totipotency. Department of Neuroscience. The Ohio State University, Columbus, OH.

Johnson, C.A. (2004). Chemical ecology and social behavior of ants. Department of Life Sciences. Indiana State University, Terre Haute, IN.

Johnson, C.A. (2004). Chemical ecology of ants from near and far. Department of Biology. Eastern Michigan University, East Lansing, MI.

Johnson, C.A. (2004). Chemical ecology of ants from near and far. Department of Animal Biology. University of Illinois, Urbana-Champaign, IL.

Johnson, C.A. (2003). Chemical ecology of ants. Department of Evolution, Ecology and Organismal Biology. The Ohio State University, Columbus, OH.

Conference Presentations

Johnson, C.A. International Society for Behavioral Ecology, NY (2008)

Johnson, C.A. Ecological Society of America, CA (2007)

Johnson, C.A. & Herbers, J.M. Ecological Society of America, TN (2006)

Johnson, C.A., Fowler, M., Rankin, D., O'Hara, R. & Kotze, J. Ecological Society of America, TN (2006)

Johnson, C.A. & Herbers, J.M. International Union for Study of Social Insects Congress, D.C. (2006)

Johnson, C.A. & Herbers, J.M. International Union for the Study of Social Insects, AZ (2004)

Lommelen, E., Johnson, C.A. et al. Benelux Congress of Zoology, Belgium (2004)

Sundström, L. & Johnson, C.A. European Society for Evolutionary Biology, UK (2003)

Johnson, C.A. et al. Animal Behavior Society Annual Meeting, Boise, ID (2003)

Lommelen, E., Johnson, C.A. & Gobin, B. Benelux Congress of Zoology, Belgium (2003)

Johnson, C.A. & Sundström, L. UIEIS - Section française, France (2002)

Johnson, C.A. et al. XIV International Congress of IUSSI, Japan (2002)

Johnson, C.A. et al. International Union for Study of Social Insects, Germany (2001)

Johnson, C.A. & Sundström, L. European Union-Research Training Network, Spain (2001)

Johnson, C.A. et al. Graduate School Meeting in Evolutionary Ecology, Finland (2000)

Johnson, C.A. & Topoff, H. Animal Behaviour Society, Lewisburg, PA (2000)

Johnson, C.A., Vander Meer, R. & Topoff, H. International Congress of IUSSI, Australia (1999)

Johnson, C.A. 26th Annual Hunter College Psychology Convention, New York, NY (1998)

Johnson, C.A. Entomological Society of America - Eastern Branch, Burlington, VT (1997)

Johnson, C.A. 25th Annual Hunter College Psychology Convention, New York, NY (1997)

Johnson, C.A. Northeast Regional Animal Behaviour Society, New Britain, CT (1996)

Professional Affiliations

- American Association for the Advancement of Science (2005-2006)
- American Women in Science (2005-2006)
- Animal Behavior Society (1998-2008)
- Behavioral Ecology (2007-2008)
- Ecological Society of America (2005-2007)
- International Union for the Study of Social Insects (2001-2008)
- New York Entomological Society (1994-2000)

Field Experience

Saül, French Guiana (1994, 2007)

Southwestern Research Station, AZ (1993 – 1998, 2003, 2005, 2007)

Kraus Preserve & Columbus Metro Parks, OH (2003 – 2006)

Ulu Gombak Field Studies Centre of the University of Malaya, Malaysia (2002)

Santa Rosa National Park, Pitilla & La Selva Biological Field Stations, Costa Rica (2002)

Tvärminne Zoological Field Station, Finland (2001)

Center for Biodiversity & Conservation (AMNH) Ngoc Linh, Tay Con Linh, Vietnam (1999, 2000)

Board & Committee Service

Co-founder & Editor for *Journal of Negative Results – Ecology & Evolutionary Biology* (2004 – present)

Guest Editor for *Annales Zoologici Fennici* (present)

Housing Development Fund Corporation, 300-302 Cooperative, 2nd Vice President (present)

Judge, Buell & Braun Student Award and SER Student Award, Ecological Society of America (2007)

Judge, Lauritz Muehlbach Memorial Fund, Competitive Research Grants in Vertebrate Ecology, The Ohio State University (2003)

Judge, Robert Thompson Award for Research & Academic Excellence, GSUC-CUNY (1997)

Scientific Advisory Committee, Southwestern Research Station (1997)

First Doctoral Examination Committee, Biopsychology at GSUC-CUNY (1997)

Graduate Admissions Committee, Biopsychology at GSUC-CUNY (1997)

Documentaries - Scientific Consultation

National Geographic Channel, 'Ant Wars', National Geographic Society (2005)

TV France, 'Animal Politics', Saint Thomas Productions (2003)

Staten Island Children's Museum, 'Great Explorations' Forest Environment Exhibit (2000)

Discovery Channel Australia, 'Desert Defenses', Wild Visual Productions (1997)

Outreach Activities

Pleasant Avenue Community Garden, Events Coordinator, NY, NY (2007 – present)

Bedford Audubon BioBlitz, Westchester, NY (2007)

The Nature Conservancy, Ohio Chapter, Volunteer for habitat restoration (2006)

Holden Arboretum, OH, The sinister world of slave-making ants (2005)

Judge, St. Agatha Middle School Science Day, OH (2005)

Jamaica Bay Wildlife Refuge, NY, Enslavement by a homicidal ant queen (1996)

6th & B Community Garden, NY, Enslavement by a homicidal ant queen & ant identification (1996)

Mentor, Pre-college Science Collaborative for Urban Minority Youth, AMNH, NY (1999)

Workshops

NSF ADVANCE Workshop, Women Evolving Biological Sciences. Selected participant. (2007)

Collaborations

Dr. Randall Schuh, The American Museum of Natural History, Revision of the plant bug genus *Reuteroscopus* (Heteroptera: Miridae)

Dr. Susan Perkins, The American Museum of Natural History, Role of bacteria in mediating parasite-host relationships of social insects

Drs. Jocelyn Millar & Les Greenberg, University of California at Riverside, Mandibular gland sex pheromone of the slave-making ant *Polyergus*

Teaching Positions

Pace University, NY. Entomology (Instructor). Fall 2007

- Taught fundamentals of insect morphology, life histories, behavior, and ecology, and basic taxonomy of major insect families, with an emphasis on groups that are of forensic importance.
- Used PowerPoint presentation and handouts with specialized taxonomic keys so students could identify specimens to the family level.
- Brought students into the field to collect insects and conducted laboratory sessions that involved preparation, preservation and identification of specimens, as well as rearing and identification of forensically important immature and adult insects.

The Ohio State University, OH. Evolution (Guest Lecturer). Fall 2006.

- Taught principles of kin selection evolution via haplodiploidy in social insects to upper level class.

The Ohio State University, OH. Social Insect Biology (Guest Lecturer). Spring 2004, 2005.

- Taught principles of social parasitism to upper level class emphasizing divergent evolution of parasitic relationships, the role of chemical manipulation and the coevolutionary arms race.
- Used PowerPoint presentation, created handout highlighting important concepts, and clarified difficult concepts through class discussions.
- Communicated importance of fundamental experimental design and analysis of animal behavior.
- Recruited & mentored three students from class, which joined the laboratory and participated in a field study.

The Catholic University of Leuven, Belgium. Elements of Kin Recognition (Guest Lecturer). Spring 2002.

- Taught principles of kin recognition to upper level class emphasizing ultimate and proximate mechanisms of recognizing kin, drawbacks and benefits of different mechanisms and how cheaters can invade certain systems.
- Developed exam questions for departmental qualifying exam to measure skill competency.

Hunter College, NY. Psychology (Instructor). September 1996 – December 1997.

- Taught fundamentals of psychology, ranging from neuroscience to evolutionary psychology, which resulted in students developing a better sense of their interest and strengths in psychology.
- Developed course syllabus and weekly quizzes and readings to keep students current with lectured topics, which often lead to a steady increase in grade scores.
- Used overheads and eventually PowerPoint presentations to clarify concepts
- Required students to prepare short essays so students became familiar with topic at hand as well as learned how to search for and evaluate scientific publications and improve their writing styles.
- Encouraged students to share their knowledge through active class participation, which resulted in students becoming more at ease with public forum.
- Utilized "role playing" to provide an understanding of patient & therapist viewpoints and illustrate the natural presence and power of the often unrecognized personal bias in perception & evaluation.

Hunter College, NY. Ethology (Instructor). September 1996

- Taught principals of ethology to prepare students for possible academic or applied careers in animal behavior.
- Developed course to provide students an appreciation of field observational, experimental, physiological and theoretical approaches to studying and understanding animal behavior.
- Discussed seminal papers in animal behavior to provide historical development of ethology.
- Directed students in a field observation study of waterfowl using scan sampling and journal writing to provide students with an understanding of mating behavior and male-male competition.

Teaching Positions continued

School of Visual Arts, NY. Animal Behavior (Instructor). September 1996.

- Taught principals of animal behavior to students of the visual arts.
- Tailored course to address the needs of visual arts students by using more visual materials.
- Encouraged student use of visuals along with essays to demonstrate knowledge of course topics.
- Required preparation of short essays or hypothetical studies to immerse students in the scientific process.
- Directed students in a field observation study to understand mating behavior and male-male competition in waterfowl through scan sampling and journal writing.

Hunter College, NY. Social Psychology (Teaching Assistant). Spring 1997.

- Graded exams, essays and laboratory research papers.
- Held office hours to assist students in understanding course material, explain answers on corrected exams, and discuss ways to improve assigned research papers.

Hunter College, NY. Introductory Psychology (Teaching Assistant). Fall 1995 - Spring 1996.

- Lectured periodically in instructor's absence.
- Graded exams and essays.
- Held office hours to assist students in understanding course material, explain answers on corrected exams, and discuss ways to improve assigned research papers.

Hunter College, NY. Experimental Psychology (Teaching Assistant). Fall 1993 – Spring 1994.

- Lectured periodically in instructor's presence or absence.
- Set up computer equipment and laboratory supplies.
- Habituated experimental animals to human contact.
- Graded exams, essays and laboratory research papers.
- Held office hours to assist students in understanding course material, explain answers on corrected exams, and discuss ways to improve assigned research papers.

New York University, NY. Introduction to Statistics (Teaching Assistant). Fall 1992.

- Graded exams, essays and laboratory research papers.