

Omar Tonsi Eldakar

PERT Post-doctoral Fellow
University of Arizona
Center for Insect Science
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Education

- Ph.D (2008) *The evolution of self-limiting behavioral strategies*
Supervising Professor: David Sloan Wilson, Binghamton University, NY—Major: Biology
- M.S. (2005) *Explaining individual differences in cooperation, cheating and punishment*
Supervising Professor: David Sloan Wilson, Binghamton University, NY—Major: Biology
- B.S. (2003) Department of Biology, Binghamton University, NY—Major: Biology

Fellowships

- (2009 - current) Postdoctoral Excellence in Research and Teaching (PERT) Fellowship, Center for Insect Science, University of Arizona (funding by NIH, IRACDA)
 - Supervising Professor Nicholas J. Strausfeld (2011 – present)
 - Supervising Professor John W. Pepper (2009 - 2011)
- (2004-2008) NSF AGEP Fellow (Fall 2004-Spring 2008) Alliances for Graduate Education and the Professoriate.
- (2003-2004) NSF K-12 Fellow (Fall 2003-Spring 2004) National Science Fellow to promote science in local public schools.

Grants

- (2003, 2005 -2008) NSF AGEP Fellowship summer research/continuing grant (\$3,000-5,000). Awarded by Binghamton University.
- (2008) The Edmund Niles Huyck Preserve (Spring 2008); “The evolution of hyper-aggressivity in water striders” (\$1000)
- (2006) The Edmund Niles Huyck Preserve (Spring 2006); “The evolutionary response of the

Eastern Tree Hole Mosquito *Ochlerotatus triseriatus* to local acid rain environments" \$500

(2005) NSF AGEP Fellowship Travel Fund (Summer 2005).

Publications

Peer reviewed

Eldakar, O. T. and *Gallup, A. C. (2011) The consequences and evolution of sexual conflict in multigroup populations. *PLoS one*, *in press*.

Gallup, A. C. and **Eldakar, O. T.** (2011) Contagious yawning and climate variation. *Frontiers in Evolutionary Neuroscience* 3, 1-4.

Eldakar, O. T. and Wilson D. S. (2011) Eight criticisms not to make about group selection. *Evolution* 65, 1523-1526.

Suni, S. S. and **Eldakar, O. T.** (2011) High mating frequency and variation with lineage ratio in dependent-lineage harvester ants. *Insectes Sociaux* 58, 357-364.

Eldakar, O. T., Wilson, D. S, Dlugos, M., and Pepper J. W. (2010) The role of multilevel selection in the evolution of sexual conflict in the water strider *Aquarius remigis*. *Evolution* 64, 3183-3189.

Eldakar, O. T., Dlugos, M., *Holt, G. P., Wilson, D. S. and Pepper J. W. (2010) Population structure influences sexual conflict in wild populations of water striders. *Behaviour* 147, 1615-1631.

Eldakar, O. T., Dlugos, M., Pepper, J. W. and Wilson, D. S. (2009) Population structure mediates sexual conflict in water striders. *Science* 326, 816.

Eldakar, O. T., Dlugos, M., Wilcox, R. S. and Wilson, D. S. (2009) Aggressive mating as a tragedy of the commons in a water strider *Aquarius remigis*. *Behavioral Ecology and Sociobiology* 64, 25-33.

Eldakar, O. T. and Wilson, D. S. (2008) Selfishness as second-order altruism. *Proceedings of the National Academy of Sciences USA*, 109, 6982-6986.

Eldakar, O. T., Farrell, D. and Wilson, D. S. (2007) Selfish punishment: Altruism can be maintained by competition among cheaters. *Journal of Theoretical Biology* 29, 198-205.

Eldakar, O. T., Wilson, D. S. and O'Gorman, R (2006) Emotions and actions associated with altruistic helping and punishment. *Evolutionary Psychology* 4, 274-286.

Eldakar, O. T., Wilson, D. S. and O'Gorman, R (2009) Emotions and actions associated with altruistic helping and punishment, in *Understanding Altruism* (ed. S. Gopalan) Icfai University Press. [reprinted from Eldakar et al. 2006]

Popular press

Eldakar, O. T. An evolutionary biologist learns how to be remembered: cheat someone. *Nature* 460, 783-783 (12 August 2009). (*invited for Nature's Journal Club*)

Manuscripts in review

Eldakar, O. T. and *Gallup, A. C. Mate disruption in the water strider *Aquarius remigis*. *In review*

Manuscripts In preparation

Eldakar, O. T. and *Driscoll, W. W. The evolution of enforcement strategies: How a little hypocrisy can go a long way in maintaining cooperation.

*Driscoll, W. W., **Eldakar, O. T.** et al. Ideal competition through horizontal idea transfer between group and kin selection.

Dlugos, M., **Eldakar, O. T.** and Wilcox, R. S. Influence of photoperiod, food abundance and predation on *Aquarius remigis* mating tactics and behavior.

*O'Brien, D. T., *Gallup, A. C. and **Eldakar, O. T.** Who Can Afford to Punish? Individuals with Greater Resource Access Are More Likely to Punish Non-Cooperators.

* *Graduate Student researcher at the time of research*

† *Undergraduate student researcher at the time of research.*

Media coverage

- (2011) More than a sign of sleepiness, yawning may cool the brain (*see also various related titles*)
- Based on publication: *Contagious yawning and climate variation*
 - Coverage by: MSNBC, Discovery news, The Slate, Men's Health, WebMD, The Daily Telegraph (UK), International Business Times and others.
- (2009) *Evolution: Nice guys finish last*. Research highlights, *Nature* 460, 308.
- Based on publication: *Population structure mediates sexual conflict in water striders*.
- (2009) Thriving on Selfishness. *Scientific American* (April 2009)
- Based on publication: *Selfishness as second-order altruism*
- (2009) Why nice guys usually get the girls (*see also Nice guys don't always finish last*)
- Based on publication: *Population structure mediates sexual conflict in water striders*.
 - Coverage by: U.S. News and World Report, Newsweek, DiscoveryChannel.com, KCSN News Radio in Los Angeles and others.
- (2008) Altruism's unexpected ally—selfishness.

- Based on publication: *Selfishness as second-order altruism*.
- Coverage by: AOL News, Science Daily, Human Nature News, Physorg.com and others.

Teaching Experience

Instructor of Record

- (2011) Environmental Biology. Pima community college, AZ.
- (2009) Biology for non-majors. Widener University, PA.
- (2006, 2008) Animal Behavior. Binghamton University, NY.
- (2005, 2008) Introductory Biology: Ecology, Evolution and Behavior. Binghamton University, NY.

Teaching Assistant

- (2005-2007) Developmental Biology. Binghamton University NY.
- (2007) Animal Behavior. Binghamton University NY.
- (2005) Entomology. Binghamton University NY.

Advising, Mentorship and Teacher Development

- (2011) Research mentor for undergraduate students Rachel Faye Perlman and Alyson Carney. *Paternity competition and sexual conflict in water striders*.
- (2010) Pedagogy Workshop on Effective Teaching in the Sciences (Dr. Josephine Kurdziel, University of Michigan), Tucson AZ.
- (2010) Research mentor for Binghamton University graduate student Andrew C. Gallup. *Population level consequences of sexual conflict*.
- (2010) Research mentor for Pima Community College undergraduate Jose Pino. *Tracking individual dispersal in wild populations of water striders*.
- (2008) Research mentor for Binghamton University undergraduates Allison Whelan and Grace Huang. *Population structure and sexual conflict*.
- (2003) Pedagogy Workshop on the 5E teaching technique (Dr. Nancy Stamp and Dr. Tom O'Brien, Binghamton University), Binghamton NY.

Professional Service

(current)	Invited contributor for forthcoming special issue on multilevel selection in <i>Evolution</i> .
(2011)	External examiner of the Doctor of Business Administration thesis for Nipun Agarwal. Victoria University, Melbourne Australia.
(2010- current)	Peer reviewer for journals: <i>Evolution</i> , <i>Trends in Ecology and Evolution</i> , <i>Journal of Theoretical Biology</i> , and <i>Naturwissenschaften</i> .
(2005-2008)	Senator for Biological Sciences department in the Graduate Student Organization (BGSO).
(2007)	Binghamton University NSF AGEP representative at the 14 th Compact for Faculty Diversity, Arlington VA.

Research Experience

(2009-current)	<p><i>Sexual conflict as a tragedy of the commons.</i> Supervising professor (John W. Pepper)</p> <ul style="list-style-type: none"> • Collaborators (Andrew Gallup, Princeton; Michael J. Dlugos, Binghamton University; Sevan Suni, University of Arizona; Toby Daly-Engel, University of Arizona; Galen Holt, University of Arizona).
(2007-current)	<p><i>Exploring the spatial heterogeneity of cooperation and punishment in the Binghamton city area using experimental economics.</i></p> <ul style="list-style-type: none"> • Collaborators (David Sloan Wilson, Binghamton University; Daniel T. O'Brien, Harvard; Andrew Gallup, Princeton).
(2007-2008)	<p><i>Ecological and social influences of mating tactic choice in the water strider <i>Aquarius remigis</i></i></p> <ul style="list-style-type: none"> • Collaborators (Michael J. Dlugos, Binghamton University).
(2006-current)	<p><i>Theoretical and empirical research on the evolution of altruism.</i></p> <ul style="list-style-type: none"> • Collaborators (David Sloan Wilson, Binghamton University; Dean L. Farrell, Binghamton University, Daniel T. O'Brien, Harvard; Andrew Gallup, Princeton).

Oral Presentations

(2009)	Department of Ecology and Evolutionary Biology, University of Arizona (September 2009) "Nice guys don't always finish last: How sexual conflict is mediated by the population structure."
(2009)	Department of Evolution, Ecology, and Organismal Biology, U.C. Riverside - Invited speaker "Aggressive mating as a tragedy of the commons"

- (2008) Center for Insect Science, University of Arizona “Aggressive mating as a tragedy of the commons: How sexual conflict is mediated by the population structure.”
- (2007) Human Behavior and Evolution Society Conference “Selfishness as second-order altruism”
- (2006) The Edmund Niles Huyck Preserve Research Symposium; “The evolutionary response of the Eastern Tree Hole Mosquito *Ochlerotatus triseriatus* to local acid rain environments”
- (2006) Binghamton University Biological Sciences Department Annual Symposium “Selfish Punishment: Modeling view of selfishness promoting altruism.”
- (2004) Department of Ecology and Evolution and Behavior, Binghamton University “Emotions and actions associated with altruistic helping and punishment.”

Poster Presentations

- (2008) Northeast Evolutionary Psychology Conference “Carving out a niche: Selfish punishment as a self-limiting strategy in humans”
- (2007) Binghamton University Graduate Research Day “Selfish Punishment: Altruism can be maintained by competition amongst cheaters.”
- (2007) Sigma Xi – regional at Cornell. “Selfish Punishment: Altruism can be maintained by competition amongst cheaters.”
- (2006) Human Behavior and Evolution Society Conference. “Selfish Punishment: Altruism can be maintained by competition amongst cheaters.”
- (2005) Human Behavior and Evolution Society Conference. “Explaining individual differences in economic games”

Awards

- (2008) Distinguished Dissertation Award. Binghamton University, NY.
- (2008) The Graduate Community of Scholars (GCOS) Achievement Award. Binghamton University NY.
- (2008) Evolutionary Studies (EvoS) Certificate. Completion of required curriculum in evolutionary studies.
- (2001-2003) All-American Scholar Athlete (Fall 2001-Spring 2003) Awarded to Division 1

athletes maintaining 3.0 gpa or greater.

(1999-2002) Binghamton University (NCAA Division 1) Track and Field captain.

Outreach

(2003-2008) Friends of the Nature Preserve (2003-2008)—A volunteer group that takes care of Binghamton Universities nature preserve

(2007-2008) Philosophical discussions of issues faced by minorities in upper education. Interdisciplinary participation by NSF AGEP Fellows and encouraged involvement of university undergraduates.

(2002-2003) Mentoring/Tutoring at risk youths after school program at the Roberson Science Center, Binghamton NY.