

Curriculum Vitae
HEIDI S. FISHER

Address:

Department of Biology
University of Maryland
1210 Biology-Psychology Bldg.
College Park, MD 20742

Office: (301) 405-2005

Email: hsfisher@umd.edu

Lab website: <http://life.umd.edu/biology/hsfisherlab/>

Current Position:

2015 - Assistant Professor, Department of Biology, University of Maryland, College Park

Research Interests:

Sexual selection and the evolution of reproductive traits

Cooperation and conflict in biological systems

Mating systems and reproductive strategies

Genetic basis of adaptation and speciation

Education:

2002 – 2006 Ph.D. in Biology, Boston University, Boston, MA

2000 – 2001 M.S. in Biological Sciences, University of California, San Diego, CA

1996 – 2000 B.S. in Ecology, Behavior & Evolution, University of California, San Diego, CA

2005 Molecular Evolution Course, Marine Biological Laboratory, Woods Hole, MA

1998 University of California Tropical Biology Course, Monteverde, Costa Rica

Research Experience:

2013 – 2015 NIH Pathway to Independence (K99) Research Fellow

Harvard University, Department of Organismic and Evolutionary Biology

Harvard University, Department of Molecular and Cellular Biology

Howard Hughes Medical Institute

Advisors: Dr. Hopi E. Hoekstra (Harvard) and Susan S. Suarez (Cornell)

2011 – 2013 Research Associate

Harvard University, Department of Organismic and Evolutionary Biology

Advisor: Dr. Hopi E. Hoekstra

2007 – 2011 NIH Ruth L. Kirschstein (NRSA) Postdoctoral Fellow

Harvard University, Department of Organismic and Evolutionary Biology

Advisor: Dr. Hopi E. Hoekstra

- 2006 – 2007 Postdoctoral Researcher
 Boston University, Department of Biology
 Texas A&M University, Department of Biology
 Advisors: Dr. Gil G. Rosenthal (TAMU) and Dr. Michael D. Sorenson (BU)
- 2002 - 2006 Palmer-McLeod Predoctoral Fellow
 Boston University, Department of Biology
 Marine Biological Laboratory, Woods Hole, MA
 Advisor: Dr. Gil G. Rosenthal
- 1999 – 2001 Research Assistant in Animal Behavior
 Center for Reproduction of Endangered Species, San Diego Zoological Society
 Advisor: Dr. Ronald R. Swaisgood
- 1998 – 1999 Research Assistant in Behavioral Ecology
 University of California, San Diego and Guanacaste, Costa Rica
 Advisor: Dr. Sandra L. Vehrencamp

Teaching Experience:

- 2002 – 2004 Graduate Teaching Fellow
 Boston University, Department of Biology
 Courses: Population Dynamics (Spring 2004)
 Molecular Evolution (Fall 2003)
 Animal Communication (Spring 2003)
 Sensory Biology (Fall 2002)
 **Outstanding Teaching Fellow Award (2003)*
- 2001 – 2002 Graduate Teaching Assistant
 University of California, San Diego, Division of Biology
 Courses: Animal Communication (Spring 2002)
 Conservation and the Human Predicament (Fall 2001)
 **Outstanding Teaching in Biology Award (2001)*
- 1999 – 2000 Undergraduate Teaching Assistant
 University of California, San Diego, Division of Biology
 Courses: Laboratory in Behavioral Ecology (Fall 2000)
 Behavioral Ecology (Summer 2000)
 Biometry (Fall 1999)

Research Grants and Awards:

- 2013 – 2018 NIH Pathway to Independence (K99/R00) Award
 2013 NIH Office of Women's Health Research Enhancement Award (REAP)
 2011 Putnam Expedition Grant, Harvard Museum of Comparative Zoology
 2007 – 2011 NIH Ruth L. Kirschstein (NRSA) Postdoctoral Fellowship
 2008 Harvard University Postdoc Travel Award
 2004 – 2006 Palmer-McLeod Predoctoral Research Fellowship
 2005 Society for Integrative and Comparative Biology Research Grant

2005	Animal Behavior Society Student Research Grant
2005	E.O. Wilson Conservation Award
2004	Boston University Travel Grant
2001	Sigma Xi Student Research Grant
2000	Zoological Society of San Diego Conservation Research Grant
2000	Chancellors Undergraduate Research Fellowship
1999	Jeanne Messier Memorial Fund for Independent Research

Publications:

- Fisher, H.S.**, Giomi, L., Hoekstra, H.E., and L. Mahadevan. 2014. The dynamics of sperm cooperation in a competitive environment. *Proceedings of the Royal Society of London, Series B*. 281: 20140296.
- Peterson, B.P., Weber, J.N., Kay, E.H., **Fisher, H.S.**, and H.E. Hoekstra. 2012. Double digest RADseq: An inexpensive method for *de novo* discovery and genotyping in model and non-model species. *PLoS One*. 7: e37135.
- Culumber, Z.C., **Fisher, H.S.**, Tobler, M., Mateos, M., Barber, P.H., Sorenson, M.D., and G.G. Rosenthal. 2011. Replicated hybrid zones of *Xiphophorus* swordtails along an elevational gradient. *Molecular Ecology*. 20: 342-356.
- Rosenthal, G.G., Fitzsimmons, J.N., Karl, K., Gerlach, G., and **H.S. Fisher**. 2011. Tactical release of a sexually-selected pheromone in a swordtail fish. *PLoS One*. 6: e16994
- Fisher, H.S.**, and H.E. Hoekstra. 2010. Competition drives cooperation among closely related sperm of deer mice. *Nature*. 463: 801-803.
- Weber, J.N., Peters, M.B., Tsyusko, O.V., Linnen, C.R., Hagen, C., Schable, N.A., Tuberville, T.D., McKee, A.M., **Fisher, H.S.**, Dewey, M.J., Hoekstra, H.E., and T.C. Glenn. 2010. Five hundred microsatellite loci for *Peromyscus*. *Conservation Genetics*. 11: 1243-1246.
- Fisher, H.S.**, and G.G. Rosenthal. 2010. Relative abundance of *Xiphophorus* fishes and its effects on sexual communication. *Ethology*. 116: 32-38.
- Fisher, H.S.**, Mascuch, S.J., and G.G. Rosenthal. 2009. Multivariate male traits misalign with multivariate female preference in the swordtail fish, *Xiphophorus birchmanni*. *Animal Behaviour*. 78: 265-269.
- Fisher, H.S.**, and G.G. Rosenthal. 2007. Male swordtails court with an audience in mind. *Biology Letters*. 3: 5-7.
- Fabian, N.J., Albright, L.B., Gerlach, G., **Fisher, H.S.**, and G.G. Rosenthal. 2007. Humic acid interferes with species recognition in zebrafish (*Danio rerio*). *Journal of Chemical Ecology*. 33: 2090-2096.
- Fisher, H.S.**, and G.G. Rosenthal. 2006. Hungry females exhibit stronger mating preferences. *Behavioral Ecology*. 17: 979-981.
- Fisher, H.S.**, and G.G. Rosenthal. 2006. Female swordtail fish use chemical cues to select well-fed males. *Animal Behaviour*. 72: 721-725.
- Fisher, H.S.**, Wong, B.B.M., and G.G. Rosenthal. 2006. Alteration of the chemical environment disrupts communication in a freshwater fish. *Proceedings of the Royal Society of London, Series B*. 273: 1187-1193.
- Wong, B.B.M., **Fisher, H.S.**, and G.G. Rosenthal. 2004. Male mate choice for chemical cues in swordtail fish. *Behavioral Ecology*. 16: 818-822.
- Shady, S., MacLeod, D.I.A., and **H.S. Fisher**. 2004. Adaptation from invisible flicker. *Proceedings of the National Academy of Sciences, USA*, 101: 5170-5173.
- Fisher, H.S.**, R.R. Swaisgood, and H. Fitch-Snyder. 2003. Countermarking by male pygmy lorises (*Nycticebus pygmaeus*): do females use odor cues to select mates with high competitive ability? *Behavioral Ecology & Sociobiology*. 53: 123-130.

Fisher, H.S., R.R. Swaisgood, and H. Fitch-Snyder. 2003. Odor familiarity and female preference for males in a threatened primate, the pygmy loris (*Nycticebus pygmaeus*). *Naturwissenschaften*. 11: 509-512.

Shady, S., MacLeod, D.I.A, **Fisher, H.S.**, and Liang, J.Y. 2002. Adaptation from invisible luminance and chromatic flicker. *Journal of Vision*. 2: 68.

Invited Seminars:

- 2015 Gordon Research Conference: Fertilization and Activation of Development
- 2013 Cornell University, Reproductive Physiology/Endocrinology
- 2012 College of William and Mary, Department of Biology
- 2011 University of Texas, Austin, Section of Integrative Biology
- 2011 Texas A&M University, Department of Biology
- 2010 Harvard Medical School, Cytogenetic Research Lab
- 2005 Boston Behavior Club
- 2003 Boston University, Department of Ecology, Behavior and Evolution
- 2002 The Center for Reproduction of Endangered Species, San Diego Zoological Society

Presentations at Professional Meetings:

- 2014 Society for the Study of Reproduction, Grand Rapids, MI, “The dynamics of sperm cooperation in a competitive environment”
- 2014 International Society for the Study of Behavioral Ecology, New York, NY, “The causes and consequences of adaptive sperm morphology in deer mice”
- 2012 Evolution, Ottawa, Ontario, “Genetic basis and fitness effects of a sexually selected trait in deer mice”
- 2011 Evolution, Norman, OK, “Alliance and Antagonism: Uncovering the mechanisms driving sperm competition in deer mice”
- 2010 New Directions in Sexual Selection: Unifying Behavioral and Genomic Approaches, Bath, UK, “Sperm competition and cooperation in *Peromyscus* mice”
- 2008 International Society of Behavioral Ecology, Ithaca, NY, “Divergent mating strategies drive sperm competition in deer mice”
- 2008 Evolution, Minneapolis, MN, “Divergent mating strategies drive sperm competition in deer mice”
- 2007 Animal Behavior Society, Burlington, VT, “Female preferences conflict with male competitive displays in a swordtail fish”
- 2006 Evolution, Stony Brook, NY, “Asymmetric female preferences and male traits in a swordtail fish”
- 2004 Animal Behavior Society, Oaxaca, Mexico, “Environmentally-mediated breakdown of species recognition in two hybridizing swordtail fishes”
- 2003 American Society of Ichthyology and Herpetology, Manaus, Brazil, “Evolution of a *Xiphophorus* hybrid zone”
- 2003 European Meeting of Peociliid Biologists, Zurich, Switzerland, “Temporal shifts in population dynamics of a swordtail hybrid zone”
- 2002 Animal Behavior Society, Bloomington, IN, “Chemical communication and female preference in the pygmy loris, *Nycticebus pygmaeus*”

Media Coverage of Research (selected):

Discover Magazine, May 28, 2015. “Sperm’s Herd Mentality”

Tech Times, Jul. 30, 2014. "Deer Mouse Sperm Engage in 'Group Swim' to Up Fertility: Harvard Study"

National Geographic Phenomena, Jul. 23, 2014. "These Mice Excel at Assembling the Ideal Sperm Swim Teams"

ScienceNews, Jul. 21, 2014. "Mouse Sperm Parties Make for Straight Swimmers"

National Geographic Daily News. Apr. 21, 2010. "Sperm Recognize Brothers, Team Up For Speed"

National Public Radio. Jan. 21, 2010. "Sperm of a Feather Flock Together" (live interview)

Nature News. Jan. 20, 2010. "Brother Sperm Train Together"

Science Now. Jan. 20, 2010, "Sperm Hook Up to Outswim Rivals"

Harvard Gazette. Jan. 20, 2010, "Sperm Competition, Cooperation"

Science Daily. Jan 20, 2010, "Sperm Can Identify, and Even Cooperate with, its Brethern"

El Colombiano, Colombia. Mar. 13, 2007. "Ella o Ellos: el dilema del pez"

Smithsonian Magazine, Jan. 2007. "Wild Things: Observed"

MSNBC, LiveScience, Fox News Online Nov. 14, 2006 "Fish Balance Courtship with Threats"

Science ORF, Austria, Nov. 12, 2006. "Schwertträgerfische balzen mächtig für die"

The New York Times, Nov. 7, 2006. "Courtship with a Twist"

The New York Times, Feb. 28, 2006. "Alluring Swordtail Scent is Lost in Pollution"