

DOUGLAS R. TAYLOR

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PERSONAL INFO:

Born December 3, 1963 (Ridgewood, NJ)
Citizenship: Dual, US & Canadian

EDUCATION:

1993 Ph.D., Genetics, Duke University, Advisor: J. Antonovics
1988 M.Sc., Biology, Queen's University, Advisor: L.W. Aarssen
1986 B.Sc., Biology, Queen's University

PROFESSIONAL EXPERIENCE:

2004- Professor and Chair, Department of Biology, University of Virginia
1999-2004 Associate Professor, Department of Biology, University of Virginia
1994-1999 Assistant Professor, Department of Biology, University of Virginia
1993-1994 Postdoctoral Research Associate, Center for Microbial Ecology,
Michigan State University, Advisor: R. Lenski.

AWARDS/HONORS:

1999-02 Samuel Miller Research Chair
1998 National Science Foundation, Career Development Award
1996-97 University Teaching Fellowship, University of Virginia
1994 American Society of Naturalists Young Investigators' Prize
1992-94 Natural Sciences and Engineering Research Council of Canada (NSERC)
post-doctoral fellowship
1988 Duke University Program in Genetics Award
1988 Natural Sciences and Engineering Research Council of Canada (NSERC)
postgraduate scholarship
1988 Queen's University Faculty of Arts and Science nominee for the
Graduate Gold Medal
1987-88 Ontario Graduate Fellowship
1986-87 Franklin Bracken Memorial Fellowship

1986-87 Queen's Graduate Award

PUBLICATIONS:

Recent Submissions:

Neiman, M. and D.R. Taylor. Recombination and mutation accumulation in mitochondrial genomes. *American Naturalist* (in review).

Published or in press:

Sloan, D.B., C.M. Barr, S.R. Keller, M. Olson and D.R. TAYLOR. 2007 Evolutionary Rate Variation at Multiple Levels of Biological Organization in Plant Mitochondrial DNA. Accepted with minor revision to *Molecular Biology and Evolution*.

Keller, S.R. and D.R. TAYLOR. 2007 History, chance, and adaptation during biological invasion: separating stochastic phenotypic evolution from response to selection. Revision invited to *Ecology Letters*.

TAYLOR, D.R. and S.R. Keller. 2007. Historical range expansion determines the phylogenetic diversity introduced during contemporary species invasion. *Evolution* 61, 334–345.

Barr, C.M., S.R. Keller, P.K. Ingvarsson, D.B. Sloan, and D.R. TAYLOR. 2007. Variation in Mutation Rate and Polymorphism Among Mitochondrial Genes of *Silene vulgaris*. *Molecular Biology and Evolution* (in press).

Freedberg, S. and D.R. TAYLOR 2007. Sex ratio variance and the maintenance of environmental sex determination. *20* (1), 213–220.

Rissler, L. J., H. M. Wilbur, and D. R. TAYLOR. 2005. The influence of ecology and genetics on behavioral variation in salamander populations across the Eastern Continental Divide. *American Naturalist* 164:201-213.

Olson, M. McCauley, D. and D.R. TAYLOR. 2005. Genetics and adaptation in structured populations: Sex ratio evolution in *Silene vulgaris*. *Genetica* 123:49-62.

Church, S.A. and D.R. TAYLOR 2005. Speciation and hybridization among *Houstonia* (Rubiaceae) species: The influence of polyploidy on reticulate evolution. *American Journal of Botany* 92:1372-1380.

Barr, C.M., M. Neiman and D.R. TAYLOR. 2005. Inheritance and recombination of mitochondrial genomes in plants, fungi and animals. *New Phytologist* 168:39-50.

G. Bernasconi, T.-L. Ashman, T. R. Birkhead, J.D.D. Bishop, U. Grossniklaus, E. Kubli, D.L. Marshall, B. Schmid, I. Skogsmyr, R.R. Snook, D. TAYLOR, I. Till-Bottraud,

- P.I. Ward, D. Zeh, B. Hellriegel. Evolutionary ecology of the pre-zygotic stage in animals and flowering plants. *Science* 303:971-975.
- Ingvarsson, P.K., Ribstein, S. and Taylor, D. R. 2003. Molecular Evolution of Insertions and Deletion in the Chloroplast Genome of *Silene*. *Molecular Biology and Evolution* 20:1737-1740.
- Rissler, L.J. and D.R. TAYLOR. 2003. The phylogenetics of desmognathine salamander populations across the southern Appalachians. *Molecular Phylogenetics and Evolution* 27: 197-211.
- Church, S.A., J.M. Kraus, J.C. Mitchell, D.R. Church and D.R. TAYLOR. 2003. Evidence for multiple Pleistocene refugia in the post-glacial expansion of the eastern tiger salamander, *Ambystoma tigrinum tigrinum*. *Evolution* 57: 372-383.
- TAYLOR, D.R. and P.K. Ingvarsson. 2003. Common features of segregation distortion in plants and animals. *Genetica* 117: 27-35.
- Stilwell, K.L, H.M. Wilbur, C.R. Werth and D.R. TAYLOR. 2003. Heterozygote advantage in the American Chestnut, *Castanea dentata* (Fagaceae). *American Journal of Botany* 90: 207-213.
- TAYLOR, D.R., C. Zeyl and E. Cooke. 2002. Conflicting levels of selection in the accumulation of mitochondrial defects in *Saccharomyces cerevisiae*. *Proceedings of the National Academy of Sciences*. 99:360-3694.
- Ingvarsson, P.K. and D.R. TAYLOR. 2002. Genealogical evidence for epidemics of selfish genes. *Proceedings of the National Academy of Sciences*. 99: 11265-11269.
- Church, S. and D.R. TAYLOR. 2002. The evolution of reproductive isolation in spatially structured populations. *Evolution* 56:1859-1962.
- Delph, L.F., F. N. Knapczyk and D.R. TAYLOR. 2002. Among-population variation and correlations in sexually dimorphic traits in *Silene latifolia*. *Journal of Evolutionary Biology*. 15: 1011-1020.
- TAYLOR, D.R. 2002. Ecology and evolution of reduced virulence in the chestnut-blight host pathogen system. pp. 286-296 in *Adaptive Dynamics of Infectious Diseases*, U. Dieckman, J.A.J. Metz, M. Sabelis, K. Sigmund (eds). Cambridge University Press, Cambridge.
- TAYLOR, D.R., Olson, M., and D. McCauley. 2001. A quantitative genetic analysis of nuclear cytoplasmic male sterility in structured populations of *Silene vulgaris*. *Genetics* 158: 833-841.
- McCauley, D. E., Olson, M.S. and D. R. TAYLOR. 2001. The influence of metapopulation structure on genotypic fitness in a gynodioecious plant. *Evolutionary Ecology* 14: 181-194.

- McCauley, D. E., M. S. Olson, S. N. Emery, and D. R. TAYLOR, 2000 Population structure influences sex ratio evolution in a gynodioecious plant. *American Naturalist* 155:814-819.
- Franklin, R., D.R. TAYLOR and A. Mills. 2000. The distribution of microbial communities in anaerobic and aerobic zones of a shallow coastal plain aquifer. *Microbial Ecology* 38: 377-386.
- TAYLOR, D.R., M. J. Saur and E. Adams. 1999. Variation in pollen performance and its consequences for sex ratio evolution in a dioecious plant. *Evolution* 53: 1028-1036.
- TAYLOR, D.R., S. Trimble and D. E. McCauley. 1999. Ecological genetics of gynodioecy in *Silene vulgaris*: relative fitness of females and hermaphrodites during the colonization process. *Evolution* 53: 745-751.
- TAYLOR, D.R. 1999. Genetics of sex ratio variation among natural populations of a dioecious plant. *Evolution* 53: 55-62.
- Franklin, R., D.R. TAYLOR and A. Mills. 1999. Characterization of microbial community structure in aquifers using Randomly Amplified Polymorphic DNA (RAPD). *Journal of Microbiological Methods* 35:225-235.
- TAYLOR, D.R., A.M. Jarosz, R.E. Lenski and D. Fulbright. 1998. Acquisition of hypovirulence in host-pathogen systems with three trophic levels. *American Naturalist* 151: 343-355.
- McCauley, D.E. and D.R. TAYLOR. 1997. Local population structure and the sex ratio: evolution in gynodioecious plants. *American Naturalist* 150: 406-419.
- TAYLOR, D.R. 1996. Parental expenditure and offspring sex ratios in the dioecious plant, *Silene alba* (= *S. latifolia*). *American Naturalist* 147: 870-879.
- Crone, E.E. and D.R. TAYLOR. 1996. Complex dynamics in experimental populations of an annual plant, *Cardamine pennsylvanica*. *Ecology* 77:289-299.
- TAYLOR, D.R. 1994. Sex ratio in hybrids between *Silene alba* and *Silene dioica*: evidence for Y-linked restorers. *Heredity* 74: 518-526.
- TAYLOR, D.R. 1994. The genetic basis of sex ratio distortion in *Silene alba*. *Genetics* 136: 341-351.
- Aarssen, L.W. and D.R. TAYLOR. 1992. Fecundity allocation in herbaceous plants. *Oikos* 65: 222-232.

- TAYLOR, D.R. 1991. The genetics of aging. *New Horizons*. August 1991.
- TAYLOR, D.R. 1990. Evolutionary consequences of cytoplasmic sex ratio distorters. *Evolutionary Ecology* 4: 235-248.
- TAYLOR, D.R. and L.W. Aarssen. 1990. Complex competitive relationships among genotypes of three perennial grasses: Implications for species coexistence. *American Naturalist* 136:305-327.
- TAYLOR, D.R., L.W. Aarssen, and C. Loehle. 1990. On the relationship between r/K selection and environmental carrying capacity: A new habitat templet for plant life history strategies. *Oikos* 58: 239-250.
- TAYLOR, D.R. and L.W. Aarssen. 1989. On the density dependence of replacement series competition experiments. *Journal of Ecology* 77: 975-988.
- TAYLOR, D.R. and L.W. Aarssen. 1988. An interpretation of phenotypic plasticity in *Agropyron repens* (Graminae). *American Journal of Botany* 75: 401-413.

RESEARCH GRANTS:

Current:

- 2004 National Science Foundation. Collaborative Research (RUI): The evolutionary genetics of invasiveness in *Silene latifolia*. ~\$650,000 (with Lorne Wolfe, Georgia Southern University). REU Supplements in 2004-5.

Past:

- 2004 National Science Foundation. FIBR Planning Grant. Genome dynamics and the evolution of sexual systems. \$49,500.
- 2003-2004 Jeffress Trust. Molecular Evolution of the melanic color polymorphism in the mosquitofish, *Gambusia holbrooki*. \$25,000
- 2002-2005 US Department of Agriculture. The population genomics of an invasive weed in its native and introduced ranges. ~\$300,000 Total Award (Collaborative grant with Dave McCauley)
- 2000-2004 National Science Foundation. Natural Selection in Ephemeral Demes: Sex Ratio Evolution in *Silene vulgaris*. Collaborative Research with Dave McCauley. \$485,000 Total Award.
- 1999-2003 National Science Foundation, Career Development Award. Ecology and genetics of the sex ratio polymorphism in natural populations of *Silene latifolia*. \$315,000.

- 2000-2002 Jeffress Memorial Trust. Using Y-Chromosome Microsatellites In *Silene latifolia* To Study The Origin And Spread Of Agriculture In Europe. \$40,000.
- 2000 National Science Foundation. REU Supplement. \$5,000.
- 1998-2000 Jeffress Memorial Trust. Molecular techniques in conservation: population structure of endangered North American *Houstonia*. \$34,346
- 1997-2000 National Science Foundation. Frequency-dependent fitness in structured populations of a gynodioecious plant. \$120,000 (Co-PI with PI, David McCauley).
- 1996-1999 Samuel Miller Foundation. The Chestnut blight host-pathogen system. \$35,000
- 1996-1997 University of Virginia Research Support - Sex ratio evolution in *Silene*. \$13,000.
- 1995-2000 National Science Foundation. Cytoplasmic hyperparasites and their influence of plant pathogen interactions. \$40,402.
- 1994-1997 Dean's Office Support for Undergraduate Research (4 grants of \$300ea.)
- 1992-94 National Science Foundation. The genetic basis of sex ratio distortion in *Silene alba* (co-authored with Janis Antonovics (PI) as a mechanism for post-doctoral support). \$203,858.
- 1992 Sigma Xi Grant in Aid of Research. Analysis of sex ratio distortion in *Silene alba* using RAPD markers of the Y chromosome. \$915.
- 1990-92 National Science Foundation - Dissertation Improvement. Population dynamics and evolution in heterogeneous environments: Experimental populations of *Cardamine pensylvanica*. \$8,000.

INVITED SEMINARS:

- 2007 University of Lausanne, Department of Ecology and Evolution
University of Minnesota, Department of Ecology and Evolution
- 2006 University of Fribourg, Symposium on Invasive Species
- 2005 University of Virginia
- 2004 University of Alabama, Department of Biology
University of Toronto, Department of Botany
University of Lausanne, Department of Ecology and Evolution
- 2003 University of North Carolina, Biology Department and Genomics Institute

- Swiss National Science Foundation
- 2002 Boston Consulting Group, Strategy Workshop
- 2001 Virginia Tech, Biology Department
- 2000 Indiana University, Biology Department
- University of Georgia, Genetics Department
- University of California, Irvine, Department of Ecology and Evolutionary Biology
(invited by graduate student population)
- 1999 Duke University Botany Department
- Symposium on Meiotic Drive (ESEB, Barcelona, Spain)
- Cold Spring Harbor
- 1998 Resolution of Evolutionary Conflicts (Economic Strategy Conference, Strategy
Institute of the Boston Consulting Group & Darden School of Business).
- 1997 Symposium on Virulence Management (IIASA, Vienna, Austria)
- University of Tennessee, Department of Ecology and Evolution
- University of Virginia (Department of Philosophy)
- 1996 University of Virginia (Department of Environmental Sciences)
- University of Virginia (Teaching Resource Center Workshop)
- 1995 Blandy Experimental Farm
- National Youth Science Camp
- 1994 Kellogg Biological Station
- Mountain Lake Biological Station
- 1993 University of Virginia
- University of Kentucky
- University of Rochester
- Vanderbilt University
- Michigan State University
- 1992 Duke University
- Rutger's University

PROFESSIONAL SERVICE:

Associate Editor for:

- 2001-2004 American Naturalist
- 2000-2003 Journal of Evolutionary Biology

Panelist:

- 2003 NSF Population Biology Panel
- 1999 NSF Population Biology Panel

Reviewer for:

- 2007 Molecular Ecology, New Phytologist, Czech Science Foundation
- 2006 Evolution, Heredity, Molecular Ecology
- 2005 Journal of Ecology, Science Academy of Finland
- 2004 American Naturalist, Heredity, PLOS Biology, Genetics.
- 2003 American Naturalist, Molecular Biology and Evolution, Journal of Evolutionary
Biology, National Science Foundation, Swiss Science Foundation
- 2002 American Naturalist, Evolution, Molecular Ecology, Journal of Evolutionary
Biology, National Science Foundation

- 2001 Journal of Evolutionary Biology, Evolution, American Naturalist, Theoretical Population Biology, American Journal of Botany, Ecology Letters, Finland Academy of Sciences, National Science Foundation
- 2000 Evolution, American Naturalist, Ecology, Journal of Evolutionary Biology, National Science Foundation
- 1999 American Naturalist, Canadian Journal of Botany, Proceedings of the Royal Society of London, National Science Foundation
- 1998 American Naturalist, Evolution, American Journal of Botany
- 1997 American Naturalist, Biological Journal of the Linnaean Society, National Science Foundation, US Department of Agriculture
- 1996 American Naturalist, Phytopathology, Journal of Evolutionary Biology, Ecology
- 1995 American Naturalist, Ecology
- 1994 Evolution, Evolutionary Biology
- 1992 Mathematical Biosciences
- 1991 Ecology

Member:

- 1997 Young Investigator Prize Committee, American Society of Naturalists

DEPARTMENTAL SERVICE:

- Department Chair (2004-
- Director of Graduate Studies (2003)
- Chair, Undergraduate Committee (1999-2001)
- Undergraduate Committee (1998-1999)
- Graduate Committee (1994-1998, 2001-2003)
- Departmental Steering Committee (1996-1998)
- Search Committees (Evolutionary Biology-1995, Evolutionary Biology - 1997)
- Ph.D. Thesis Committees by Department:
 - Biology (~30, chair on 6)
 - Environmental Sciences (3)
 - Computer Sciences (1)
 - External (Duke University Botany Department, University of Lausanne Department of Ecology and Evolution)

UNIVERSITY SERVICE:

- Arts and Science Associate Dean Search (2000)
- Committee to Appoint Faculty Leaves (1999-2000)
- Arts and Science Dean Search (1997)
- Panel Member - Panel Discussion on early success in academic careers (1997)
- First Year Advisor (1996-1997)

LECTURE COURSES TAUGHT:

Undergraduate:

- The Use and Abuse of Darwinism (USEM 170)
- Genetics and Evolution (BIOL 301)
- Integrative Biology (BIOL 302)

Introduction to Evolution (BIOL 307)
Evolutionary Biology (BIOL 401)
Ecological and Evolutionary Genetics (BIOL 402)
Evolutionary Biology Laboratory (BIOL 403)
Molecular Techniques in Systematics and Evolution (BIOL 533)
Concepts in Strategy (BIOL/PHIL 386)

Graduate:

Molecular Population Genetics (BIOL 705)
Evolutionary Biology (BIOL 703)
Evolutionary Genetics (BIOL 702)
Theoretical Issues in Conservation Biology

GRADUATE STUDENTS:

Gretchen Arnold (MS – Research Scientist, V.I.M.S.)
Sheri Church (Ph.D. – NSF Bioinformatics Post-doc, Assistant Professor, George Washington University)
Leslie Rissler (Ph.D. – NSF Bioinformatics Post-doc, Assistant Professor Univ. of Alabama)
Kathrine Ross (Graduate Student in Biostatistics)
Kevin Stilwell (graduated, MS – High School Teacher)
Stephen Keller (current)
Quinn McFrederick (current)
Daniel Sloan (current)
Dexter Sowell (current)

POST-DOCTORAL ASSOCIATES:

Pär Ingvarsson (Assistant Professor, University of Umea, Sweden)
Lisa Horth (Assistant Professor, Old Dominion University)
Camille Barr (Post-doc at the University of Montana)
Steve Freedberg (Assistant Professor, St. Olaf College)
Maurine Nieman (Assistant Professor, University of Iowa)

RECENT COLLABORATORS: (other than graduate students)

Janis Antonovics
Giorgina Bernasconi
Lynda Delph
Steve Freedberg
Richard Lenski
David McCauley
Maurine Neiman
Matthew Olson
Henry Wilbur
Lorne Wolfe
Clifford Zeyl

REFERENCES:

David McCauley
Department of Biology
Buttrick Hall
Vanderbilt University
Nashville, TN, 37235
(615) 322-0119
david.e.mccauley@vanderbilt.edu

Richard Lenski
Center for Microbial Ecology
Michigan State University
East Lansing, MI, 48824-1325
(517) 355-3278
lenski@msu.edu

Rytas Vilgalys
Department of Biology
Box 90338
Duke University
Durham, NC, 27708
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fungi@acpub.duke.edu

Janis Antonovics
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Henry Wilbur
Department of Biology
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