GAVIN C. WOODRUFF, PH.D.

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EDUCATION

Ph.D. Biology. University of Maryland, College Park. 2013

B.S. Biological Sciences. Georgia State University. 2007
Summa cum laude with thesis honors.

POSITIONS

Assistant Professor August 2020-Present
University of Oklahoma

Postdoctoral Fellow 2015-2020
University of Oregon
Advisor: Patrick C. Phillips.
Research topic: Establishing the fig-associated nematode *Caenorhabditis inopinata* as a multidisciplinary biological system

Postdoctoral Fellow 2014-2015
Forestry and Forest Products Research Institute, Tsukuba, Japan
Sponsor: Natsumi Kanzaki
Research topics: Host-sensing behavior in *Caenorhabditis*; biology of fig-associated *Caenorhabditis*; nematode alpha taxonomy

Graduate Fellow and Research Assistant 2007-2013
University of Maryland, College Park
Advisor: Eric S. Haag
Dissertation title: "Investigations into the evolution of self-fertile hermaphroditism and reproductive isolation in *Caenorhabditis* nematodes"

Research Assistant 2006-2007
Georgia State University
Advisor: Walter W. Walthall
Thesis title: "UNC-30 and the specification of inhibitory motor neurons in *Caenorhabditis elegans*"

PUBLICATIONS

Published

(12) **G. C. Woodruff** and A. A. Teterina 2020
"Degradation of the repetitive genomic landscape in a close relative of *C. elegans*"
Molecular Biology and Evolution
https://doi.org/10.1093/molbev/msaa107

(11) **G. C. Woodruff**, E. Johnson, and P. C. Phillips 2019

"A large close relative of *C. elegans* is slow-developing but not long-lived."
BMC Evolutionary Biology
https://doi.org/10.1186/s12862-019-1388-1

(10) **G. C. Woodruff** and P. C. Phillips 2018
"Field studies reveal a close relative of *C. elegans* thrives in the fresh figs of *Ficus septica* and disperses on its *Ceratosolen* pollinating wasps."
BMC Ecology
https://doi.org/10.1186/s12898-018-0182-z

(9) N. Kanzaki, I.J. Tsai, R. Tanaka, V.L. Hunt, K. Tsuyama, D. Liu, Y. Maeda, **G. C. Woodruff**, 2018
S. Namai, R. Kumagai, A. Tracey, N. Holroyd, K. Murase, H. Kitazume, M.-M. Billah, H. mien Ke, J. Wang, M. Berriman, P.W. Sternberg, A. Sugimoto, and T. Kikuchi
"Biology and genome of a newly discovered sibling species of *Caenorhabditis elegans*"
Nature Communications
https://www.nature.com/articles/s41467-018-05712-5

(8) **G. C. Woodruff**, J. H. Willis, and P. C. Phillips 2018
"Dramatic evolution of body length due to post-embryonic changes in cell size in a newly discovered close relative of *C. elegans*"
Evolution Letters
https://doi.org/10.1002/evl3.67

(7) N. Kanzaki*, **G. C. Woodruff***, M. Akiba, and N. Maehara 2015
"*Diplogasteroides asiaticus* n. sp., associated with *Monochamus alternatus* in Japan"
Journal of Nematology
http://journals.fcla.edu/jon/article/view/84948

(6) N. Kanzaki, **G. C. Woodruff**, and R. Tanaka 2014
"*Teratodiplogaster variegatae* n. sp. isolated from the syconia of *Ficus variegata* Blume on Ishigaki Island, Okinawa, Japan."
Nematology
https://doi.org/10.1163/15685411-00002843

(5) **G. C. Woodruff**, T. Maugel, C. Knauss, and E. S. Haag 2014
"Mating damages the cuticle of *C. elegans* hermaphrodites"
PLoS ONE
https://doi.org/10.1371/journal.pone.0104456

(4) J. Ting*, **G. C. Woodruff***, G. Leung, N. R. Shin, A. D. Cutter, and E. S. Haag 2014
"Intense sperm-mediated sexual conflict promotes reproductive isolation in *Caenorhabditis* nematodes"
PLoS Biology
https://doi.org/10.1371/journal.pbio.1001915

(3) C. G. Thomas, L. Renhua, H. E. Smith, **G. C. Woodruff**, B. Oliver, and E. S. Haag 2012
"Simplification and desexualization of gene expression in self-fertile nematodes"
Current Biology
https://doi.org/10.1016/j.cub.2012.09.038

(2) C. G. Thomas, **G. C. Woodruff**, and E. S. Haag 2012
"Causes and consequences of the evolution of reproductive mode in *Caenorhabditis* nematodes"

Trends in Genetics
https://doi.org/10.1016/j.tig.2012.02.007

(1) **G. C. Woodruff**, O. Eke, S. E. Baird, M. A. Félix, and E. S. Haag 2010
"Insights into species divergence and the evolution of hermaphroditism from fertile interspecies hybrids of *Caenorhabditis* nematodes"
Genetics
https://doi.org/10.1534/genetics.110.120550

In revision

G. C. Woodruff 2019
"Patterns of putative gene loss reveal rampant developmental system drift in nematodes"
bioRxiv
https://doi.org/10.1101/627620

In review

E.H. Hammerschmidth*, **G. C. Woodruff***, and P. C. Phillips 2020
"Opposing directions of stage-specific body length change in a close relative of *C. elegans*"
bioRxiv
https://doi.org/10.1101/2020.06.23.168039

*Equal contribution

FUNDING AND AWARDS

University of Oregon Knight Campus award for student outreach 2017
[For the undergraduate program SCORE (Students of Color Opportunities for Research Enrichment), developed in collaboration with multiple colleagues.]
$7,000

NIH Ruth L. Kirschstein National Research Service Award Individual Postdoctoral Fellowship 2015-2018
Three-year postdoctoral stipend award.
$166,000

JSPS Postdoctoral Fellowship for North American and European Researchers 2014-2015
One-year postdoctoral stipend award.
¥4,344,000 or ~$41,000

University of Maryland Dr. Howard Brinkley travel award 2013
$500

University of Maryland Ann G. Wylie graduate fellowship 2011-2012
One-year graduate student stipend.
~$21,000.

University of Washington Summer Institute in Statistical Genetics scholarship 2009
Two weeks of coursework and travel.

University of Maryland Graduate School fellowship 2007-2008

One-year graduate student stipend.
~$18,000.

State of Georgia HOPE Scholarship 2003-2007
Four-year undergraduate tuition.
~$25,000.

PEER REVIEW

Current Biology
Evolution
Evolution and Ecology
Evolution Letters
Journal of Nematology
PLoS Genetics

TEACHING EXPERIENCE

Lab instructor and coordinator 2015-Present
University of Oregon
SCORE (Students of Color Opportunities for Research Enrichment) Program
Duties include designing and leading lab sections, as well as giving lectures and leading discussions.

Teaching assistant 2009-2010, 2013
University of Maryland
BSCI 430 Developmental Biology
Duties included advising students and grading exams.

Teaching assistant 2011-2012
University of Maryland
BSCI 330 Cell Biology
Duties included leading lab sections, giving lectures, leading discussions, and grading assignments.

Teaching assistant 2008
University of Maryland
BSCI 207 Organismal Biology
Duties included leading weekly study sessions and grading exams.

UNDERGRADUATE MENTEES

Eric Hammerschmidt 2015-2017
Graduated with thesis honors from the Honor's College. Now a research technician in the Sebastian Seung lab at Princeton University.

Taylor Kelley 2015-2016
Now a research assistant at Oregon Health & Science University.

Christine Knauss 2012-2013
Contributed crucial data and was co-author of a publication in *PLoS ONE*. Now a graduate student at the University of Maryland Center for Environmental Science.

Onyi Eke 2009-2011
Contributed crucial data and was co-author of a publication in *Genetics*. Graduated from Johns Hopkins University School of Medicine in 2015.

PRESENTATIONS

Invited talks

Academia Sinica 2019
"Exploring the proximate and ultimate causes of phenotypic diversity with fig nematodes"

Georgia State University 2013
"Intense sperm-mediated sexual conflict promotes reproductive isolation in *Caenorhabditis* nematodes"

University of California, Los Angeles 2013
"Intense sperm-mediated sexual conflict promotes reproductive isolation in *Caenorhabditis* nematodes"

University of Oregon 2013
"Intense sperm-mediated sexual conflict promotes reproductive isolation in *Caenorhabditis* nematodes"

Contributed talks

EvoWorm 2020: Virtual Edition. 2020
"Alignment of genetic structure across trophic levels in the fig microcosm"

Virtual Worm Sessions. 2020
"Evolution of the dauer larva, repetitive genomic landscape, and transcriptome in a fig worm"

Evolution Conference 2019. Providence, RI, USA. 2019
"Patterns of genomic diversity and dispersal among island populations of a fig wasp associated relative of *C. elegans*"

Northwest Regional Meeting of the Society for Developmental Biology. Friday Harbor, WA, USA. 2019
"Dramatic evolution of body length due to post-embryonic changes in cell size in a newly discovered close relative of *C. elegans*"

Molecular Evolution of the Cell SMBE Satellite Meeting. Park City, UT, USA. 2018
"Dramatic evolution of body length due to post-embryonic changes in cell size in a newly discovered close relative of *C. elegans*"

International Evolution of *Caenorhabditis* and Other Nematodes Meeting. Cold Spring Harbor, NY, USA. 2016
"Dramatic evolution of body length due to post-embryonic changes in cell size in a newly discovered close relative of *C. elegans*"

19th International *C. elegans* Meeting. Los Angeles, CA, USA. 2013
"The hazards of love: sterilization and lethality in interspecies crosses"

International Evolution of *Caenorhabditis* and Other Nematodes Meeting, Hinxton, UK. 2010
"*C. briggsae*/*C*. sp. 9 hybrids, reproductive isolation, and the evolution of hermaphroditism in *Caenorhabditis*"

International Evolution of *Caenorhabditis* and Other Nematodes Meeting, Madison, WI, USA. 2008
"Fertile hybrids between the hermaphroditic *C. briggsae* and a new male/female species, *C*. sp. 9"

Contributed posters

TAGC Online 2020. 2020
"Degradation of the repetitive genomic landscape in a close relative of *C. elegans*"

Pan-American Society for Evolutionary Developmental Biology (PASEDB) Meeting. Miami, FL, USA. 2019
"Fig worms for evo-devo and integrative biology"

Society for Molecular Biology and Evolution (SMBE) Meeting. Manchester, UK. 2019
"The diverse genomic landscape of repetitive elements across *Caenorhabditis* nematodes"

International Evolution of *Caenorhabditis* and Other Nematodes Meeting. Hinxton, UK. 2018
"*Caenorhabditis inopinata* as a system for integrative biology"

EVO-WIBO Regional Evolution Meeting. Port Townsend, WA, USA. 2018
"*Caenorhabditis inopinata* as a system for integrative biology"

21st International *C. elegans* Meeting. Los Angeles, CA, USA. 2017
"The natural history of a fig-associated *Caenorhabditis*"

20th International *C. elegans* Meeting. Los Angeles, CA, USA. 2015
"Notable characteristics of *C.* sp. 34, a species associated with figs and fig wasps"

International Evolution of *Caenorhabditis* and Other Nematodes Meeting. Hinxton, UK. 2014
"Mating damages the cuticle in *C. elegans* hermaphrodites."

The 6th Asia-Pacific *C. elegans* Meeting. Nara, Japan. 2014
"Chemotaxis assays reveal phoretic carrier sensing in *Caenorhabditis*."

International Evolution of *Caenorhabditis* and Other Nematodes Meeting. Cold Spring Harbor, NY, USA. 2012
"Using interspecies *Pristionchus* hybrids to understand the evolution of self-fertile hermaphroditism."

RESEARCH INTERESTS

Evo-devo	Reproductive mode evolution	Comparative phylogenetics
Genetics of phenotypic diversity	Sexual conflict	Phenotypic plasticity
Developmental genetics	Gene family evolution	Natural history of nematodes
Comparative genomics	Life history evolution	Nematode diversity
Reproductive isolation	Population genomics	Transposable elements

REFERENCES

Patrick C. Phillips, Ph.D.
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