

# GAVIN C. WOODRUFF, PH.D.

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## EDUCATION

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

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

## POSITIONS

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**Postdoctoral Fellow** 2015-Present  
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

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### *Published*

(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."

- (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. Machara 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. Mangel, C. Knauss, and E. S. Haag 2014  
“Mating damages the cuticle in *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*

\*Equal contribution

***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>

***Submitted***

**G. C. Woodruff** and A. A. Teterina 2019  
“Degradation of the repetitive genomic landscape in a close relative of *C. elegans*”  
*bioRxiv*  
<https://doi.org/10.1101/797035>

**FUNDING AND AWARDS**

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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

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*Current Biology*  
*Evolution*  
*Evolution Letters*  
*Journal of Nematology*  
*PLoS Genetics*

## TEACHING EXPERIENCE

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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

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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

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*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 <i>Caenorhabditis</i> nematodes”	
University of California, Los Angeles	2013
“Intense sperm-mediated sexual conflict promotes reproductive isolation in <i>Caenorhabditis</i> nematodes”	
University of Oregon	2013
“Intense sperm-mediated sexual conflict promotes reproductive isolation in <i>Caenorhabditis</i> nematodes”	
<b>Contributed talks</b>	
Evolution Conference 2019. Providence, RI, USA.	2019
"Patterns of genomic diversity and dispersal among island populations of a fig wasp associated relative of <i>C. elegans</i> "	
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 <i>C. elegans</i> ”	
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 <i>C. elegans</i> ”	
International Evolution of <i>Caenorhabditis</i> 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 <i>C. elegans</i> ”	
19 <sup>th</sup> International <i>C. elegans</i> Meeting. Los Angeles, CA, USA.	2013
"The hazards of love: sterilization and lethality in interspecies crosses"	
International Evolution of <i>Caenorhabditis</i> and Other Nematodes Meeting, Hinxton, UK.	2010
" <i>C. briggsae</i> / <i>C. sp. 9</i> hybrids, reproductive isolation, and the evolution of hermaphroditism in <i>Caenorhabditis</i> "	
International Evolution of <i>Caenorhabditis</i> and Other Nematodes Meeting, Madison, WI, USA.	2008
"Fertile hybrids between the hermaphroditic <i>C. briggsae</i> and a new male/female species, <i>C. sp. 9</i> "	
<b>Contributed posters</b>	
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 <i>Caenorhabditis</i> nematodes”	
International Evolution of <i>Caenorhabditis</i> and Other Nematodes Meeting. Hinxton, UK.	2018
“ <i>Caenorhabditis inopinata</i> as a system for integrative biology”	

EVO-WIBO Regional Evolution Meeting. Port Townsend, WA, USA. “ <i>Caenorhabditis inopinata</i> as a system for integrative biology”	2018
21 <sup>st</sup> International <i>C. elegans</i> Meeting. Los Angeles, CA, USA. “The natural history of a fig-associated <i>Caenorhabditis</i> ”	2017
20 <sup>th</sup> International <i>C. elegans</i> Meeting. Los Angeles, CA, USA. “Notable characteristics of <i>C. sp. 34</i> , a species associated with figs and fig wasps”	2015
International Evolution of <i>Caenorhabditis</i> and Other Nematodes Meeting. Hinxton, UK. “Mating damages the cuticle in <i>C. elegans</i> hermaphrodites.”	2014
The 6 <sup>th</sup> Asia-Pacific <i>C. elegans</i> Meeting. Nara, Japan. “Chemotaxis assays reveal phoretic carrier sensing in <i>Caenorhabditis</i> .”	2014
International Evolution of <i>Caenorhabditis</i> and Other Nematodes Meeting. Cold Spring Harbor, NY, USA. “Using interspecies <i>Pristionchus</i> hybrids to understand the evolution of self-fertile hermaphroditism.”	2012

## RESEARCH INTERESTS

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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

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Patrick C. Phillips, Ph.D. Professor University of Oregon Pacific 316 Eugene, OR, USA 97403 541-346-0916 pphil@uoregon.edu	312 Pacific Hall Eugene, OR 97403 541-346-4779 wcresko@uoregon.edu
Eric S. Haag, Ph.D. Professor University of Maryland 0256 Biology/Psychology Building 4094 Campus Drive College Park, MD, USA 20742 301-405-8534 ehaag@umd.edu	Nadia D. Singh, Ph.D. Associate Professor University of Oregon 312 Pacific Hall Eugene, OR 97403 541-346-9308 nsingh@uoregon.edu
William A. Cresko, Ph.D. Professor University of Oregon	Joseph A. Ross, Ph.D. Associate Professor California State University, Fresno 2555 E. San Ramon, M/S SB73 Fresno, CA, USA 93740 559-278-4074 jross@csufresno.edu

Additional references can be provided upon request.