**William Emerson Wood, Ph.D.**

Assistant Project Scientist

University of California, Berkeley

Helen Wills Neuroscience Institute

Theunissen Laboratory

billewood@berkeley.edu

**Education**

**Ph.D.**

2007-2012

University of Washington, Graduate Program in Neurobiology and Behavior, in the lab of Dr. David Perkel

**B.A.**

2000-2004

Reed College, Major in Biology

**Relevant Work Experience**

**Assistant Project Scientist**, Theunissen Lab, UC Berkeley, Helen Wills Neuroscience Institute

11/1/2019-Current

* Supervised, trained, and managed laboratory personnel in conducting neurophysiological recordings, surgical techniques, and a wide array of behavioral experiments in avian species.
* Collaborated with colleagues to analyze large quantities of electrophysiological, neural, and auditory data and prepared said data for publications.
* Prepared and maintained laboratory records and compliances, including introducing viral methodologies and BSL-2 work.

**Post-Doctoral Researcher** in the lab of Dr. Frederic Theunissen, UC Berkeley, Helen Wills Neuroscience Institute

11/1/2015-10/31/2019

* Supervised, trained, and managed laboratory personnel in conducting neurophysiological recordings, surgical techniques, and a wide array of behavioral experiments in avian species.
* Collaborated with colleagues to analyze large quantities of electrophysiological, neural, and auditory data and prepared said data for publications.
* Helped design and implement a novel awake-behaving electrophysiological recording apparatus.

**Post-Doctoral Fellow** in the lab of Dr. Arthur Leblois, Le Centre national de la recherche scientifique (CNRS), Paris, France

12/15/2012-10/31/2015

* Implemented awake-behaving electrophysiology on zebra finches with real-time feedback of song activity.
* Consulted with the histology core to improve a variety of mounting and staining techniques.
* Analyzed and prepared data for publication and grants via programming in matlab and other analytical software.

**Fulbright Post-Doctoral Fellow** with Dr. Sidarta Ribeiro at the Universidade Federal do Rio Grande do Norte, Natal, Brazil.

3/1/2014-6/1/2014

* Administered field recordings of wild Common Marmoset vocalizations.
* Designed operant behavior techniques and housing enclosures for eliciting and recording captive Common Marmoset vocalizations.
* Analyzed acoustic data.

**Predoctoral Researcher** at University of Washington Graduate Program in Neurobiology and Behavior, in the lab of Dr. David Perkel

2007-2012

* Identified novel neuromodulatory actions of serotonin on premotor neurons in the song system, including identifying the underlying receptor.
* Utilized patch clamp electrophysiology, *in vivo* electrophysiology, acoustic analyses, field recordings, and neural manipulations such as tract tracing and microdissection.
* Collaborated and published academic articles with three different laboratories.

**Research Assistant** at the Neurological Sciences Institute at the Oregon Health and Sciences University in the lab of Claudio Mello

2006-2007

* Optimized and carried out *in situ* RNA hybridizations of dozens of probes.
* Caught and mapped the brains of wild Anna’s Hummingbirds.
* Carried out various histological techniques including slicing, mounting, and staining brain sections.

**Intern** at the Institute for Bird Populations working on the Monitoring Avian Reproductivity and Survivorship Program

2005

* Caught and banded hundreds of wild songbirds in remote locations in the Blue Mountains of northeastern Oregon.

**Undergraduate Thesis Research** at Reed College with Dr. Stephen Yezerinac

2004

* Recorded songs of freely behaving songbirds and ambient anthropogenic noise.
* Analyzed recordings and developed an academic publication demonstrating the novel finding that the minimum frequency of song sparrow song co-varies with amount of anthropogenic noise.

**Academic Peer Reviewed Publications**

Miller, K.E., Wood, W.E., Brenowitz, E.A., Perkel, D.J. (2020). Brain-Derived Neurotrophic Factor Has a Transsynaptic Trophic Effect on Neural Activity in an Adult Forebrain Circuit. J. Neurosci. 40(6). doi : 10.1523/JNEUROSCI.2375-19.2019

Darshan, R., Wood, W.E., Peters, S., Leblois, A., Hansel, D. (2017). A canonical neural mechanism for behavioral variability. Nat. Commun. 8:15415. doi: 10.1038/ncomms15415

Larson, T.A., Lent, K.L., Bammler, T.K., MacDonald, J.W., Wood, W.E., Caras, M.L, Thatra, N.M, Budzillo, A., Perkel, D.J., Brenowitz, E.A. (2015). [Network analysis of microRNA and mRNA seasonal dynamics in a highly plastic sensorimotor neural circuit.](https://www.ncbi.nlm.nih.gov/pubmed/26545368) BMC Genomics. 16:905. doi: 10.1186/s12864-015-2175-z

Wood, W.E., Roseberry, T.K., Osseward, P., Perkel, D.J. (2013). A Daily Oscillation in the Fundamental Frequency and Amplitude of Harmonic Syllables. *Plos One.* 8(12):e82327

Wood, W.E., Roseberry, T., Perkel, D.J. (2013). HTR2 receptors in a songbird premotor cortical-like area modulate fine spectral characteristics of zebra finch song. *J. Neurosci.* 33(7):2908-15

Wood, W.E., Lovell, P.V., Mello, C.V., Perkel, D.J. (2011). Serotonin, via HTR2 receptors, excites neurons in a cortical-like premotor nucleus necessary for song learning and production*. J. Neurosci.* (39):13808-15.

Ackay, C., Wood, W.E., Templeton, C., Campbell, L., Beecher, M. (2009). Good Neighbour, bad neighbour: Song sparrows retaliate against aggressive rivals. *Animal Behaviour*. 78:97-102

Wood, W.E., Olson, C.R., Lovell, P.V., Mello, C.V. (2008). Dietary retinoic acid affects song maturation and gene expression in the song system of the zebra finch. *Developmental Neurobiology*. 68(10):1213-24.

Wood, W.E., Yezerinac, S.M. (2006). Song sparrow (Melospiza melodia) song varies with urban noise. *The Auk*. 123: 650–659

**Selected Other Publications, Presentations, and Popular Press Coverage**

Yu, K., Wood, W.E., Prasad, A., Theunissen, F.E. 2019. Auditory Memories for Communication Calls in Zebra Finches. Society for Neuroscience Annual Conference Poster Presentation.

Wood, W.E., Theunissen, F.E. 2016. [Ensemble neural recordings from awake behaving songbirds via microdrive-coupled tungsten microarrays](https://www.abstractsonline.com/pp8/#!/4071/presentation/12852). Society for Neuroscience Annual Conference Poster Presentation.

Wood, W.E., Leblois, A., 2015. LMAN Driven Variability in RA Neurons. European Songbird Conference Poster Presentation.

Wood, W.E., Roseberry, T., Perkel, D., 2013. A Daily Oscillation in the Fundamental Frequency of Song. Behaviour 2013, Presentation.

Wood, W.E., Roseberry, T., Perkel, D., 2013. A Daily Oscillation in Zebra Finch Song. European Songbird Conference Poster Presentation.

*The Washington Post*, Urban Jungle: Song Sparrows Adjust Their Songs to Fit in With Urban Noise. April 20th, 2010. <http://wpo.st/eAq> (reporting on Wood and Yezerinac, 2006, which was my Reed College undergraduate senior thesis)

*BBC.* Sparrows identify 'troublemakers' from innocent birds*.* October 18th, 2010. <http://news.bbc.co.uk/earth/hi/earth_news/newsid_9084000/9084464.stm> (reporting on Ackay et al., 2009)

**Select Awards**

Fulbright Post-doctoral Fellow, 2014.

Ruth L. Kirschstein National Research Service Award (NRSA) fellow, National Institute of Health (NIH) via the National Institute on Deafness and Other Communication Disorders (NIDCD). 2010-2012. "A role for serotonin in the production and learning of song in the zebra finch".

Milton L. Fischer Memorial Fellow, 2003. Reed College, Portland, OR, USA.

**Outreach Activities**

Volunteered with Seattle Audobon Society, 2012.

North West Bio Expo Fair Judge, 2010-2012. Judged the North West Association for Biomedical Research (www.nwabr.org) high school biology science fair.

Brain Awareness Week, 2009-2012. Spent one day a year teaching middle and high school students from the greater Seattle area about research in vocal communication

Bioscience Experience, 2008-2009. Introduced minority students to neuroscience research.

Reed College Biology Outreach Program, 2001-2004. Taught one science class a week at a local middle school during 6 of 8 semesters as an undergraduate.

**Academic Teaching Experience**

University of Washington. Neurobiology 450**.** Sensory perception and higher order motor controls. Sole instructor. 2011.

University of Washington. Psychology 333 – Sensory and perceptual processes. **I**nvited Lecturer, 2010-2012.

University of Washington. Neurobiology 302, Teaching Assistant.