

Jeffrey A. Riffell

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Education

Postdoctoral	Neuroscience, University of Arizona, USA
Ph.D.	Physiology, UC Los Angeles, USA
Bachelor of Arts	Chemistry, Biology, UC Santa Cruz, USA

Present positions

• Professor (Endowed)	University of Washington, USA	2018-present
• Associate Professor (Endowed)	University of Washington, USA	2015-2018
• Assistant Professor	University of Washington, USA	2010-2014

Service/Major Responsibilities (examples, 2020-present)

• <i>External Service:</i>		
○ Co-Chair, NIH Vector-borne Diseases Review Panel		2022-2025
○ Chair, Society of Integrative and Comparative Biology		2020-2023
○ Grant Reviewer: NSF (US), ANR (FR), FWO (BE), SRC (SE). HFSP		2020-2025
○ Manuscript Reviewer: <i>Science</i> , <i>Nature</i> , <i>PNAS</i> , <i>Current Biology</i> ...		2024-2025
• <i>Institution service:</i>		
○ Research Committee, Faculty Hiring Committee, Student Recruitment		2024-2025

Publications/Presentations

• Publications in peer-reviewed scientific journals and books	90
• Presentations at national and international meetings	131
• H-index	40
• Citations	>6400

Research Experience

• Director of Neuroecology Lab, Univ. Washington, Seattle WA, USA	2009-present
• Supervisor of 22 postdocs, 15 PhD students, and 8 technicians	2009-present
• Director and Primary PI of grants >\$25 million USD	2020-present
○ Mosquito Olfactory-Visual Integration	2020-present
○ Center for Reengineering Olfactory Receptors	2020-2022
○ Kavli Center for Olfaction in the Anthropocene	2024-present
• Special visiting researcher <i>IRBI</i> , Tours, France	2018-2019

Affiliations/Memberships

• Association for Chemoreception Sciences	1998-present
• International Society of Chemical Ecology	2000-present
• Society for Integrative and Comparative Biology	1998-present
• International Society of Neuroethology	2004-present
• Entomological Society of America	2004-present

Interests/Expertise

• Chemical Ecology	• Vector Biology	• Atmospheric Science
• Olfactory Neuroscience	• Quantitative Behavior	• Plant-insect interactions

Professional History (only the most relevant)

- 2025 - Invited Professor, Swedish University of Agricultural Sciences, Sweden
- 2025 – Kavli Fellow, Neurobiology in Changing Environments
- 2024 – present, Invited Professor, Georgia Tech University, US
- 2023 – present, Invited Professor, Duke University, US
- 2022 – 2025 Co-Chair, Transmission of Vector-borne and Zoonotic Diseases Panel, National Institutes of Health
- 2022-present – Faculty Instructor, Biology of Vector-borne Diseases course, Univ. Idaho
- 2018-2025 – Ad-hoc Panel Reviewer, National Science Foundation, Integrative and Organismal Biology Cluster, and Environmental Engineering and Sustainability Cluster
- 2018-2025 – Ad-hoc Grant Reviewer: Human Frontiers of Science Program, Agence Nationale de la Recherche (FR), Fonds voor Wetenschappelijk Onderzoek – Vlaanderen (BE), Swedish Research Council (Vetenskapsrådet, VR), US-Israel Binational Science Foundation (BSF), Rothamsted Research.
- 2018-2025 – University of Washington Department of Biology Committee Member: Biology Research Committee, Tenure Review Committee, Undergraduate Curriculum Committee, Faculty Search Committee
- 2018-2025 – University of Washington Committees and Service: Office of Minorities Affairs, LSAMP Committee, Internal Awards and Royalty Research Fund Reviewer, Mary Gates Undergraduate Scholarship Committee
- 2016-2023 – Chair Neurobiology Division Society of Integrative and Comparative Biology
- 2016-2023 – Editor for *Frontiers in Chemical Ecology*, *Behavioral Neuroscience*
- 2010-2025 – Symposium Organizer: Gordon Research Conference Neuroethology (2016, 2020, 2025), Society of Integrative and Comparative Biology (2010, 2016), Entomological Society of America (2016, 2024), Association of Chemosensory Sciences (2008, 2016, 2022)
- 2004 - 2008 – Research Fellow NIH IRACDA Program, University of Arizona, US.
- 2004 - 2009 – Faculty Lecturer, Pima County Community College, Arizona, US.
- 1997 - 2003 – Teaching Assistant at the Univ. of California, Los Angeles, US

Awards and Honors

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| • Kavli Foundation, Paul Allen Frontiers, and Cotrell Foundation: Neurobiology in Changing Ecosystems | 2024 |
| • National Geographic Explorer | 2018 |
| • Univ. Washington CoMotion Innovator | 2018 |
| • Endowed Professor for Excellence in Biology | 2015 |
| • Kavli Frontiers of Science Fellow | 2011 |
| • International Society for Neuroethology, Young Investigator Award | 2010 |
| • Polak Young Investigator Award, AChemS | 2009 |
| • Cota-Robles Fellow, UC Los Angeles | 1998 |

Grant Support (select shown, \$25,069,855 awarded 2020-2028)

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| • National Science Foundation (PI) “NiCE: Olfaction in the Anthropocene” (\$1,068,890) | 2024-2027 |
| • National Science Foundation (PI) “Olfactory basis of learning in mosquitoes” (\$1,000,000). | 2023-2026 |
| • Air Force Office of Scientific Research – Multi-University Research Initiative (PI) “Flexible, multimodal integration of decision and control in a spike resolved sensorimotor program for flight” (\$7,500,000) | 2023-2028 |
| • NIH-NIAID (PI) “R01: Visual and olfactory integration in mosquitoes” (\$4,019,997) | 2023-2028 |
| • NIH-NIAID (PI) “R01: Biogenic amines, malaria and manipulation of Mosquito physiology and behavior” (\$2,727,122) | 2022-2026 |
| • National Science Foundation (PI) “Neural basis of olfactory behaviors in a unique mosquito-flower association” (\$800,000). | 2022-2026 |
| • NIH-NIAID (PI) “R01: Olfactory basis of nectar-seeking in mosquitoes” (\$3,407,185) | 2021-2026 |
| • Human Frontiers in Science Foundation (PI). “Swarming in mosquitoes” | 2020-2024 |

Publication list (February 2025; Numbers in bold reflect Riffell lab major research foci)

90. Ochwedo, K.), Wang X., Céspedes, N., Bentil, R.E., Wild, R., Hernandez, E., Hernandez, A., Kaylor, H.L., Debebe, Y., Datta, J., Robert, M.A., **Riffell, J.A.**, Lewis, E.E., and Luckhart S. Regulation of diel locomotor activity and retinal responses of *Anopheles stephensi* by ingested histamine and serotonin is temperature- and infection-dependent. *PLoS Pathogens*, in press.
89. Chan, J.K., Parasurama, S., Atlas, R., Xu, R., Jongebloed, U.A., Alexander, B., Langenhan, J.M., Thornton, J.A. and **Riffell, J.A.**, 2024. Olfaction in the Anthropocene: NO₃ negatively affects floral scent and nocturnal pollination. *Science*, 383(6683), pp.607-611.
 - Featured in: NYTimes, Reuters, CNN, BBC, NPR National, NBC, Science Daily, UW Daily, others: "Polluted Flowers Smell Less Sweet to Pollinators, Study Finds"]
88. Gupta, S., Cribellier, A., Poda, S.B., Roux, O., Muijres, F.T. and **Riffell, J.A.**, 2024. Multisensory integration in *Anopheles* mosquito swarms: The role of visual and acoustic information in mate tracking and collision avoidance. *Current Biology* 34, no. 18 (2024): 4091-4103.
87. Rouyar, A., Patil, A.A., Leon-Noreña, M., Li, M., Coutinho-Abreu, I.V., Akbari, O. and **Riffell, J.A.**, 2024. Transgenic line for characterizing GABA-receptor expression to study the neural basis of olfaction in the yellow-fever mosquito. *Frontiers in Physiology*, 15, p.1381164.
86. Gupta, S., Blake, A.J. and **Riffell, J.A.**, 2023. Mosquito biology: Scents and selectability. *Current Biology*, 33(12), pp.R686-R688.
85. Lahondère, C., Vinauger, C., Liaw, J.E., Tobin, K.K., Joiner, J.M. and **Riffell, J.A.**, 2023. Effect of temperature on mosquito olfaction. *Integrative and Comparative Biology*, 63, 356–367, <https://doi.org/10.1093/icb/icad066>
84. Coles, T.A., Briggs, A.M., Hambly, M.G., Céspedes, N., Fellows, A.M., Kaylor, H.L., Adams, A.D., Van Susteren, G., Bentil, R.E., Robert, M.A. and **Riffell, J.A.**, Lewis, E.E., and Luckhart, S. 2023. Ingested histamine and serotonin interact to alter *Anopheles stephensi* feeding and flight behavior and infection with *Plasmodium* parasites. *Frontiers in Physiology*, 14.83.
83. San Alberto, D.A., Rusch, C. and **Riffell, J.A.** 2023. Conducting an Analysis of Mosquito Flight Behaviors in a Wind Tunnel. *Cold Spring Harbor protocols*. doi: 10.1101/pdb.prot108257
82. Vinauger, C. and **Riffell, J.A.** 2023. Tethered Preparation for the Analysis of Mosquito visual-motor responses using modular visual displays. *Cold Spring Harbor Protocols*. doi: 10.1101/pdb.prot108179
81. Wolff, G.H., Lahondère, C., Vinauger, C., Rylance, E. and **Riffell, J.A.**, 2023. Neuromodulation and differential learning across mosquito species. *Proceedings of the Royal Society B*, 290(1990), p.20222118.
80. Briggs, A.M., Hambly, M.G., Simão-Gurge, R.M., Garrison, S.M., Khaku, Z., Van Susteren, G., Lewis, E.E., **Riffell, J.A.** and Luckhart, S., 2022. *Anopheles stephensi* Feeding, Flight Behavior, and Infection With Malaria Parasites are Altered by Ingestion of Serotonin. *Frontiers in Physiology*, 13, pp. 1036-1045.
79. Gupta, S., and J. A. **Riffell**. "Chapter 30: Sensory neurophysiology and integration in mosquitoes." In *Sensory ecology of disease vectors*, pp. 773-799. Wageningen Academic Publishers, 2022.
78. Alonso San Alberto, D., Rusch, C., Zhan, Y., Straw, A.D., Montell, C. and Riffell, J.A., 2022. The olfactory gating of visual preferences to human skin and visible spectra in mosquitoes. *Nature Communications*, 13(1), pp.1-14.
 - [Featured in: *Scientific American*, BBC, NPR National, CBS, NBC, CNN, Science Daily]
77. Santana, S.E., Kaliszewska, Z.A., Leiser-Miller, L.B., Lauterbur, M.E., Arbour, J.H., Dávalos, L.M. and **Riffell, J.A.**, 2021. Fruit odorants mediate co-specialization in a multispecies plant–animal mutualism. *Proceedings of the Royal Society B*, 288(1956), p.20210312.
76. Rodriguez, A.M., Hambly, M.G., Jandu, S., Simão-Gurge, R., Lowder, C., Lewis, E.E., **Riffell, J.A.** and Luckhart, S., 2021. Histamine Ingestion by *Anopheles stephensi* Alters Important Vector Transmission Behaviors and Infection Success with Diverse *Plasmodium* Species. *Biomolecules*, 11(5), p.719.
75. Coutinho-Abreu, I. V., Riffell, J.A., Akbari, O.S. 2021. Human attractive cues and mosquito host-seeking

behavior. *Trends in Parasitology*.

74. Rusch, C., San Alberto, D. A., & **Riffell, J. A.** 2021. Visuo-motor feedback modulates neural activities in the medulla of the honeybee, *Apis mellifera*. *Journal of Neuroscience*, 41(14), pp.3192-3203.
73. **Riffell, J. A.** 2021. The neuroecology of insect-plant interactions: The importance of physiological state and sensory integration. *Current Opinion in Insect Science*.
72. Zhan, Y., San Alberto, D.A., Rusch, C., Riffell, J.A. and Montell, C., 2021. Elimination of vision-guided target attraction in *Aedes aegypti* using CRISPR. *Current Biology*. doi.org/10.1016/j.cub.2021.07.003
[Featured in: New York Times, BBC, NPR National, CBS, NBC, CNN, Science Daily, Phys.org, UW Daily]
71. Leiser-Miller, L.B., Kaliszewska, Z.A., Lauterbur, M.E., Mann, B., **Riffell, J.A.** and Santana, S.E., 2020. A fruitful endeavor: scent cues and echolocation behavior used by *Carollia castanea* to find fruit. *Integrative Organismal Biology*, 2(1), p.obaa007.
70. Lutz, E.K., Ha, K.T. and **Riffell, J.A.**, 2020. Distinct navigation behaviors in *Aedes*, *Anopheles* and *Culex* mosquito larvae. *Journal of Experimental Biology*, 223(7).
69. Lahondère, C., Vinauger, C., Okubo, R.P., Wolff, G.H., Chan, J.K., Akbari, O.S. and **Riffell, J.A.**, 2020. The olfactory basis of orchid pollination by mosquitoes. *Proceedings of the National Academy of Sciences*, 117, 708-716.
Featured in: BBC, NPR National, NBC, Science Daily, UW Daily, others: “Mosquitoes are drawn to flowers as much as people -- and now scientists know why”]
68. Melo, N., Wolff, G.H., Costa-da-Silva, A.L., Arribas, R., Triana, M.F., Gugger, M., **Riffell, J.A.**, DeGennaro, M. and Stensmyr, M.C., 2019. Geosmin attracts *Aedes aegypti* mosquitoes to oviposition sites. *Current Biology*, 30(1), pp.127-134.
67. **Riffell, J.A.**, 2019. Olfaction: Repellents that congest the mosquito nose. *Current Biology*, 29(21), pp.R1124-R1126.
66. Chittka, L., Giurfa, M. and **Riffell, J.A.**, 2019. The Mechanisms of Insect Cognition. *Frontiers in Psychology*, 10, p.2751.
65. Lutz, E.K., Grewal, T.S., and **Riffell, J.A.** 2019. Computational and experimental insights into the chemosensory navigation of *Aedes aegypti* mosquito larvae. *Proceedings of the Royal Society, B*. 286, 1-10.
64. Vinauger, C., Van Breugel, F., Locke, L., Tobin, K., Dickinson, M., Fairhall, A., Akbari, O. and **Riffell, J.A.**, 2019. Visual-olfactory integration in the human disease vector mosquito, *Aedes aegypti*. *Current Biology*, 29, 2509–2516
63. Shyong, J.*, Lutz, E.*, Bui, M., Yang, T., Li, M., Truong, K., Arvidson, R., Buchman, A., **Riffell, J.A.**, and Akbari, O.S. Live calcium imaging of odor-evoked responses in *Aedes aegypti* neuronal tissues reveals distinct olfactory responses in larva. *BMC Neuroscience*, 20: 27-35.
62. Delahunt, C., **Riffell, J. A.**, and Kutz, N. 2018. Biological mechanisms for learning: A computational model of olfactory learning in the *Manduca sexta* moth. *Frontiers in Computational Neuroscience*, 12: 1-20.
61. Wang, T., Clifford, M., Martínez-Gómez, J., Johnson, J., **Riffell, J.A.**, and Di Stilio, V. Scent Matters: Repeated loss of insect attraction by floral scent accompanies transitions to wind pollination. *Annals of Botany* doi.org/10.1093/aob/mcy131
60. Wolff, G.H., and **Riffell, J.A.** 2018. Olfaction, experience and neural mechanisms underlying mosquito host preference. *Journal of Experimental Biology*, 221(4), jeb157131.
59. Fenske, M.P., Nguyen, L.P., Horn, E.K., **Riffell, J.A.**, and Imaizumi, T. 2018. Circadian clocks of both plants and pollinators influence flower seeking behavior of the pollinator hawkmoth *Manduca sexta*. *Scientific reports*, 8(1), 2842.
58. Pang, R., van Breugel, F., Dickinson, M.H., **Riffell, J.A.**, and Fairhall, A. 2018. History dependence in insect flight decisions during odor tracking. *PLoS Computational Biology* 14(2): e1005969.
57. Vinauger, C., Lahondere, C., Wolff, G.H., Locke, L.T., Liaw, J.E., Parrish, J.Z., Ackbari, O.S., Dickinson, M.H.,

and **Riffell, J.A.** 2018. Modulation of host learning in *Aedes aegypti* mosquitoes. *Current Biology* 28(3): 333-344.

[Featured in: New York Times, BBC, The Guardian, NPR, CBS, NBC, CNN, Science Daily, Phys.org, UW Daily, others: "If you swat mosquitoes, they may learn to avoid your scent"]

56. Blazka, D., Sanders, E., **Riffell, J.A.**, and Shlizerman, E. 2017. Classification of fixed point network dynamics from multiple node timeseries data. *Frontiers in Neuroinformatics*, <https://doi.org/10.3389/fninf.2017.00058>
55. Zhao, Y., Chan, J., Lopez-Hilfiker, F.D., **Riffell, J.A.**, and Thornton, J.A. 2017. An electrospray chemical ionization source for real-time measurement of atmospheric organic and inorganic compounds. *Atmospheric Measurement Techniques*, 10: 3609-3625.
54. Rusch, C., Roth, E., Vinauger, C., and **Riffell, J.A.** 2017. Honeybees in a virtual reality environment learn unique combinations of colour and shape. *Journal of Experimental Biology* 220: 3478-3487.
53. Lutz, E.K., Lahondere, C., Vinauger, C., and **Riffell, J.A.** 2017. Olfactory learning and chemical ecology of olfaction in disease vector mosquitoes: A life history perspective. *Current Opinion in Insect Science*, 20, 75–83.
52. **Riffell, J.A.** 2017. Plant defense: Timing is everything. *Current Biology*, 27, R344–R346.
51. Hussain, Y.H., Sadilek, M., Salad, S., Zimmer, R.K. and **Riffell, J.A.** 2017. Individual female differences in chemoattractant production change the scale of sea urchin gamete interactions. *Developmental Biology*, 422, 186–197. <http://dx.doi.org/10.1016/j.ydbio.2017.01.006>
50. **Riffell, J.A.**, and Rowe, A.H. 2016. Neuroecology: Neural Mechanisms of Sensory and Motor Processes that Mediate Ecologically Relevant Behaviors. *Integrative and Comparative Biology* 56: 853-856.
49. Vinauger, C., Lahondère, C., Cohuet, A., Lazzari, C.R., and **Riffell, J.A.** 2016. Learning and Memory in Disease Vector Insects. *Trends in Parasitology*, <http://dx.doi.org/10.1016/j.pt.2016.06.003>.
48. Ho, W.W., and **Riffell, J.A.** 2016. The Olfactory Neuroecology of Herbivory, Hostplant Selection and Plant–Pollinator Interactions. *Integrative and Comparative Biology*, <http://dx.doi.org/10.1093/icb/icw096>.
47. Rusch, C., Broadhead, G.T., Raguso, R.A., and **Riffell, J.A.** 2016. Olfaction in context—sources of nuance in plant-pollinator communication. *Current Opinion in Insect Science*, <http://dx.doi.org/10.1016/j.cois.2016.03.007>.
46. Hussain, Y.H., Guasto, J.S., Zimmer, R.K., Stocker, R. and **Riffell, J.A.** 2016. Sperm chemotaxis promotes individual fertilization success in sea urchins. *Journal of Experimental Biology*, pp.jeb-134924.
45. Lundin, J., **Riffell, J.A.**, and Wasser, S.K. 2015. Polycyclic aromatic hydrocarbons in caribou, moose, and wolf scat samples from three areas of the Alberta oil sands. *Environmental Pollution*, 206: 527–534.
44. Reisenman, C. E., and **Riffell, J.A.** The neural bases of host plant selection in herbivorous insects in a Neuroecology framework. *Frontiers in Physiology*, 6.
43. van Breugal, F., **Riffell, J.A.**, Fairhall, A., and Dickinson, M. H. 2015. Mosquitoes Use Vision to Associate Odor Plumes with Thermal Targets. *Current Biology*, 25: 2123-2129
42. Fenske, M.P., Hazelton, K.D., Hempton, A.K., Shim, J.S., **Riffell, J.A.**, and Imaizumi, T. 2015. The circadian clock gene *LATE ELONGATED HYPOCOTYL* directly regulates the timing of floral scent emission in *Petunia*. *Proceedings of the National Academy of Sciences, USA*; 131:9775-9780.
41. **Riffell, J.A.**, Shlizerman, E., Sanders, E. Abrell, L., Medina, B. Hinterwirth, A.J., Kutz, J.N. 2014. Flower discrimination by pollinators in a dynamic chemical environment. *Science*, 344:1515-1518.
[Featured in: *Science Perspectives*, New York Times, BBC, NPR National, CBS, NBC, CNN, Science Daily, Phys.org, UW Daily, others: "Fumes Keep Moths From Finding Flowers"]
40. **Riffell, J.A.** and Hildebrand J.G. 2014. Insect olfactory filters in mediating natural, ecologically relevant behaviors. *Insect Neuroethology*, ed. E. Warrant.
39. Shlizerman, E., **Riffell, J.A.**, and Kutz, J.N. 2014. Data-driven inference of network connectivity for modeling the dynamics of neural codes in the insect antennal lobe. *Frontiers in Computational Neuroscience*. doi: 10.3389/fncom.2014.00070.

38. Vinauger, C., Lutz, E.K., **Riffell, J.A.** 2014. Olfactory learning and memory in the disease vector mosquito, *Aedes aegypti*. Journal of Experimental Biology. 217, 2321-2330.
37. Byers, K.J.R.P., Bradshaw, H.D., **Riffell, J.A.** 2014. Three floral volatiles contribute to differential pollinator attraction in monkeyflowers (*Mimulus*). Journal of Experimental Biology. 217: 614-623.
36. Byers, K.J., Vela, J., **Riffell, J.A.**, Bradshaw, H.D. 2014. Floral volatile alleles can contribute to pollinator-mediated reproductive isolation in monkeyflowers (*Mimulus*). The Plant Journal. 80, 1031-1042.
35. **Riffell, J.A.**, Lei, H., Abrell, A., Hildebrand, J.G. 2013. Neural basis of a pollinator's buffet: olfactory specialization and learning in *Manduca sexta*. Science 339: 200-204.
- [Recommended by Faculty of 1000; featured in: e!Science News, Science Daily, Phys.org, others: "Moths wired two ways"]
34. **Riffell, J.A.** 2013. Neuroethology: Lemon-fresh scent makes flies lay eggs. Current Biology, 23, R1108-R1110.
33. Sprayberry, J.D.H., Ritter, K.A., **Riffell, J.A.** 2013. The effect of olfactory exposure to non-insecticidal agrochemicals on bumblebee foraging behavior. PLoS ONE 8(10): e76273. doi:10.1371/journal.pone.0076273
32. Martin, J.P., Lei, H., **Riffell, J.A.**, Hildebrand, J.G. 2013. Enhanced synchrony of antennal-lobe projection neurons encodes the behaviorally effective ratio of sex-pheromone components in male *Manduca sexta*. Journal of Comparative Physiology A 199: 963-979.
31. **Riffell, J.A.** and Alarcon, R. 2013. Multimodal floral signals and moth foraging decisions. PLoS-ONE 8(8): e72809. doi:10.1371/journal.pone.0072809.
30. Clifford, M.R., **Riffell, J.A.** 2013. Mixture and odorant processing in the olfactory systems of Insects: a comparative perspective. Journal of Comparative Physiology A. 199:911-928. doi: 10.1007/s00359-013-0818-6
29. Fricke, E.C., Simon, M.J., Reagan, K.M., Haak, D.C., Levey, D.J., **Riffell, J.A.**, and Tewksbury, J.J. 2013. When condition trumps location: seed consumption by fruit-eating birds removes pathogens and predator attractants. Ecology Letters 16:1031-1036.
28. **Riffell, J.A.**, Reisenman, C.A., Hicks, M. 2013. Chemical ecology and olfactory preferences of ovipositing *Manduca sexta* moths. Journal of Chemical Ecology 39:76-89. doi: 10.1007/s10886-012-0228-1
27. Byers, K.J., Sanders, E., **Riffell, J.A.** 2013. Identification of olfactory volatiles using gas chromatography-multi-unit recordings (GCMR) in the insect antennal lobe. Journal of Visualized Experiments e4381, doi:10.3791/4381.
26. Dacks, A.M., **Riffell, J.A.**, Martin, J.P., Gage, S.L., Nighorn, A. 2012. Olfactory modulation by dopamine in the context of aversive learning. Journal of Neurophysiology 108: 539-550. [cover article]
25. **Riffell, J.A.** 2012. Olfactory ecology and the processing of complex mixtures. Current Opinion in Neurobiology 22: 236-242, <http://dx.doi.org/10.1016/j.conb.2012.02.013>.
24. Martin, J.P., Beyerlein, A., Dacks, A.M., Reisenman, C.E., **Riffell, J.A.**, Lei, H., Hildebrand, J.G. 2011. The neurobiology of insect olfaction: Sensory processing in a comparative context. Progress in Neurobiology, 95: 427-447.
23. Agrawal, S., and **Riffell, J.A.** 2011. Behavioral neurobiology: the bitter life of male flies. Current Biology, 21, R470-R472.
22. **Riffell, J.A.** 2011. The neuroecology of a pollinator's buffet: olfactory preferences and learning in insect pollinators. Integrative and Comparative Biology. 51: 781-793.
21. **Riffell, J.A.*** and Zimmer, R.K. 2011. Extrinsic mechanisms driving sperm-egg interactions. Proceedings of the National Academy of Sciences, USA, 108: 13200-13205. *authors contributed equally
20. **Riffell, J.A.***, Veitinger, T.*, Zimmer, R.K., Hatt, H., Spehr, M. 2011. Chemosensory Ca²⁺ fingerprints define diverse behavioral phenotypes in human sperm. Journal of Biological Chemistry, 286: 17311-17325. *authors contributed equally

19. Himes, J., **Riffell, J.A.**, Zimmer, C.A., Zimmer, R.K. 2011. Sperm chemotaxis as revealed with live and synthetic eggs. *Biological Bulletin*, 220: 1-5.
18. Alarcón, R.A., **Riffell, J.A.**, Davidowitz, G., Bronstein, J.L., and Hildebrand J.G. 2010. Sex-dependent variation in the floral preferences of a hawkmoth (*Manduca sexta*). *Animal Behavior*, 80: 289-296.
17. Reisenman, C.E., **Riffell, J.A.**, Bernays, E., and Hildebrand, J.G. 2010. Floral odor signals and context-dependent behaviors in female *Manduca sexta* moths. *Proceedings of the Royal Society B: Biological Sciences* 277: 2371-2379.
16. Lei, H., Oland, L., **Riffell, J.A.**, Beyerlein, A., and Hildebrand, J.G. 2010. Microcircuits in the *Manduca sexta* antennal lobe. In *Handbook of brain microcircuits*, eds Shepherd, G. and Grillner, S. Oxford University Press.
15. **Riffell, J.A.**, Lei, H., and Hildebrand J.G. 2009. Neural correlates of behavior in the moth *Manduca sexta* in response to complex odors. *Proceedings of the National Academy of Sciences, USA* 106: 19219-19226.
14. Reisenman, C.E., **Riffell, J.A.**, and Hildebrand J.G. 2009. Neuroethology of oviposition behavior in the moth *Manduca sexta*. *Annals of the New York Academy of Sciences* 1170: 462-470.
13. Krug, P.J., **Riffell J.A.**, and Zimmer R.K. 2009. Dynamics of sperm attractant production and release from an abalone egg. *Journal of Experimental Biology* 212: 1092-1100.
12. Lei, H., **Riffell, J.A.**, Gage, S.L., and Hildebrand J.G. 2009. Contrast enhancement of stimulus intermittency in a primary olfactory network and its behavioral significance. *Journal of Biology* 8:2,21: 1-16.
11. **Riffell, J.A.**, Lei, H., Christensen T.C., and Hildebrand J.G. 2009. Characterization and coding of complex olfactory stimuli. *Current Biology* 19: 335-340.
10. **Riffell, J.A.**, Alarcón, R., Abrell, L., Davidowitz, G., Bronstein, J.L., and Hildebrand J.G. 2008. Behavioral consequences of innate preferences and olfactory learning in hawkmoth-flower interactions. *Proceedings of the National Academy of Sciences, USA* 105: 3404-3409.
9. **Riffell, J.A.**, Abrell, L., and Hildebrand J.G. 2008. Physical processes and real-time chemical measurement of the insect olfactory environment. *Journal of Chemical Ecology* 34: 837-853.
8. **Riffell, J.A.** and Hildebrand J.G. 2008. Preface to the special issue on Olfactory Ecology. *Journal of Chemical Ecology* 34: 820-821.
7. **Riffell, J.A.**, Alarcón, R., and Abrell, L. 2008. Floral trait associations in hawkmoth-specialized and mixed pollination systems: *Datura wrightii* and *Agave* spp. in the Sonoran Desert. *Communicative & Integrative Biology* 1: 6-8.
6. **Riffell, J.A.** and Zimmer R.K. 2007. Sex and flow: the consequences of fluid shear for sperm-egg interactions. *Journal of Experimental Biology* 210: 3644-3660.
5. Spehr, M., Schwahn, K., **Riffell, J.A.**, Zimmer, R.K., and Hatt H. 2006. Odorant receptors and olfactory-like signaling mechanisms in mammalian sperm. *Molecular and Cellular Endocrinology* 250(1-2): 128-136.
4. Spehr, M., Schwahn, K., **Riffell, J.A.**, Barbour, J., Zimmer, R.K., Neauhaus, E.M., and Hatt H. 2004. Olfactory receptor-mediated chemotaxis in human sperm: key role of particulate adenylate cyclase. *Journal of Biological Chemistry* 279(40): 40194-40203.
3. **Riffell, J.A.**, Krug P.J., and Zimmer R.K. 2004. The ecological and evolutionary consequences of sperm chemoattraction. *Proceedings of the National Academy of Sciences, USA* 101(13): 4501-4506.
2. Spehr, M., Gusselman G., Poplawski, A., **Riffell J.A.**, Zimmer R.K., and Hatt H. 2003. A novel testicular odor receptor controls human sperm chemotaxis. *Science* 299: 2054-2058.
1. **Riffell, J.A.**, Krug P.J., and Zimmer R.K. 2002. Fertilization in the sea: The chemical identity of an abalone sperm attractant. *Journal of Experimental Biology* 205: 1439-1450.

Select Academic Presentations (2020-2025)

2025

- Paul Allen Center workshop on climate change, WA (**invited**)
- Arizona State Univ., School of Lifescience, AZ (**invited**)

- Gordon Research Conference – Neuroethology, Italy **(invited)**
- European Chemoreception Research Organization, Spain **(invited)**

2024

- Workshop on Mosquito Control Methods, FL USA **(invited)**
- 2024 Arnold Plenary Lecture, Gonzaga University, WA USA **(invited)**
- International Congress of Neuroethology, Germany **(invited)**
- International Society for Olfaction and Taste, Iceland
- Kolymbari Meeting on Mosquitoes and Other Vectors of Disease **(invited)**
- Entomological Society of America, MD **(invited)**

2023

- Entomological Society of America, MD **(invited)**
- Gordon Research Conference – Neuroethology, VT USA (Poster)
- Bill and Melinda Gates Foundation – Decoding Olfaction Symposium, NY USA **(invited)**
- Janelia Farm - Navigational Algorithms and Neural Circuit Computations, VA USA
- Directing Olfactory Search Across Species **(invited)**
- Association for Chemoreception Sciences annual meeting, FL USA

2021/22

- International Symposium on Insect Olfaction Around the World **(invited)**
- The 6th Congress of the Latin American Association of Chemical Ecology **(invited)**
- Arizona State University Life Sciences / NeuroNex program **(invited)**

2020/21

- International Society for Olfaction and Taste **(invited)**
- Pacific Branch Entomological Society of America **(invited)**
- International Entomological Society **(invited)**
- University of Nevada, Reno **(invited)**
- International Symposium on Molecular Insect Science, Melia Sitges, Spain **(invited)**