

# Joseph Scott Wilson

## *Curriculum Vitae*

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## Education

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**Ph.D., Biology**, Utah State University, Department of Biology, Logan, Utah (2010). Dissertation Title: "Historical Biogeography of Velvet Ants (Hymenoptera: Mutillidae) in the North American Deserts and Arid Lands." Advisor: James P. Pitts.

**B.S., Biology**, Utah State University, Department of Biology (May 2005).

## Employment

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**2012-Present** Assistant Professor, Department of Biology, Utah State University, Tooele, Utah.  
**2010-2012** Postdoctoral Research Associate, Department of Biology, University of Nevada, Reno, Nevada.  
**2010** Temporary Instructor, Department of Biology, Utah State University, Logan, Utah.  
**2007-2010** Teaching Assistant Coordinator, Biology 1610/1620 Utah State University, Logan, Utah.  
**2006-2010** Research Assistant, Utah State University, Logan, Utah.  
**2005-2010** Laboratory Instructor, Utah State University, Logan, Utah.  
**2005** Biological Science Aid, USDA-ARS Bee Biology and Systematics Laboratory, Logan, Utah.  
**2004** Biological Science Technician, USFS Okanogan-Wenatchee National Forest, Tonasket, Washington.

## Publications

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### Books

**Wilson, J.S.**, and O.J. Messinger Carril. *The bees in your backyard: a guide to North American bees.* (In Press: Princeton University Press).

### Peer-reviewed Publications (\* Indicates undergraduate coauthor)

#### *Papers in review*

**Wilson, J.S.**, J.P. Jahner, E.S. Sheehan, K.A. Williams, and J.P. Pitts. *In review.* The world's largest known Müllerian mimicry complex found in North American velvet ants. *Current Biology.*

Glassmire, A.E., **Wilson, J.S.**, J.P. Jahner, K.J. Badik, A.M. Smilanich, and M.L. Forister. *In review.* The Soil Mosaic Hypothesis. *Biotropica.*

Jahner, J.P., M.L. Forister, C.C. Nice, J.A. Fordyce, **J.S. Wilson**, D.D. Murphy, Z.H. Marion, and A.M. Shapiro. *In review.* Elevational differentiation in a widespread nearctic skipper, *Polites sabuleti*. *Journal of Biogeography.*

#### *Published and in press papers*

##### In Press

Gompert, Z., J.P. Jahner, C.F. Scholl, **J.S. Wilson**, L.K. Lucas, V. Soria-Carrasco, J.A. Fordyce, C.C. Nice, C.A. Buerkle, and M.L. Forister. *In press.* The evolution of novel host use is unlikely to be constrained by tradeoffs or a lack of genetic variation. *Molecular Ecology.*

Smith, A.D., **J.S. Wilson**, and A.I. Cognato. *In press.* The evolution of Batesian mimicry within the asidine darkling beetles of North America (Coleoptera: Tenebrionidae: Asidini). *Cladistics.*

**2015**

Jahner, J.P., L.K. Lucas, **J.S. Wilson**, and M.L. Forister. 2015. Morphological outcomes of gynandromorphism in *Lycaeides* butterflies. *Journal of Insect Science*. 15 (38): DOI: 10.1093/jisesa/iev020

**2014**

Rodriguez, J., J.P. Pitts, C.D. von Dohlen, and **J.S. Wilson**. 2014. Müllerian mimicry as a result of codivergence between velvet ants and spider wasps. *PLoS ONE*. 9: e112942.

**Wilson, J.S.**, O. Messinger Carril, and S.D. Sipes. 2014. Revisiting the Great American Biotic Interchange through analyses of amphitropical bees. *Ecography*. 37: 791-796.

**2013**

Mramba, L., S. Barber, K. Hommola, L. Dyer, **J.S. Wilson**, M.L. Forister, and W.R. Gilks. 2013. Permutation tests for analyzing cospeciation in multiple phylogenies: application in tri-trophic ecology. *Statistical Applications in Genetics and Molecular Biology*. 12: 679-701.

**Wilson, J.S.**, M. Sneck\*, D.D. Murphy, C.C. Nice, J.A. Fordyce, and M.L. Forister. 2013. Complex evolutionary history of the pallid dotted-blue butterfly (Lycaenidae: *Euphilotes palleescens*) in the Great Basin of western North America. *Journal of Biogeography*. 40: 2059-2070.

**Wilson, J.S.**, C.F. Gunnell\*, D.B. Wahl, and J.P. Pitts. 2013. Testing the species limits of the tarantulas (Araneae: Theraphosidae) endemic to California's Southern Coast Ranges, U.S.A. *Insect Conservation and Diversity*. 6: 365-371.

Forister, M.L., and **J.S. Wilson**. 2013. The population ecology of novel plant-herbivore interactions. *Oikos*. 122: 657-666.

Forister, M.L., C.F. Scholl, J.P. Jahner, **J.S. Wilson**, J.A. Fordyce, Z. Gompert, D. Narala\*, C.A. Buerkle, and C.C. Nice. 2013. Specificity, rank preference and the colonization of a non-native host plant by the Melissa blue butterfly. *Oecologia*. 172: 177-188.

**Wilson, J.S.**, J.P. Jahner, K.A. Williams, and M.L. Forister. 2013. Ecological and evolutionary processes drive the origin and maintenance of imperfect mimicry. *PLoS ONE*. 8: e61610.

**Wilson, J.S.**, C.D. von Dohlen, M.L. Forister and J.P. Pitts. 2013. Family-level divergences in the stinging wasps (Hymenoptera: Aculeata) with correlations to Angiosperm diversification. *Evolutionary Biology*. 40: 101-107.

**2012**

**Wilson, J.S.**, K.A. Williams, M.L. Forister, C.D. von Dohlen, and J.P. Pitts. 2012. Repeated evolution in overlapping mimicry rings among North American velvet ants. *Nature Communications*. 3: 1272.

**Wilson, J.S.**, and J.P. Pitts. 2012. Identifying Pleistocene refugia in North American cold deserts using phylogeographic analyses and ecological niche modelling. *Diversity and Distributions*. 18: 1139-1152.

**Wilson, J.S.**, M.L. Forister, L.A. Dyer, J.M. O'Connor, K. Burls, C.R. Feldman, M.A. Jaramillo, J.S. Miller, G. Rodríguez-Castañeda, E.J. Tepe, J.B. Whitfield and B. Young\*. 2012. Host conservatism, host shifts and diversification across three trophic levels in two Neotropical forests. *Journal of Evolutionary Biology*. 25: 532-546.

**Wilson, J.S.**, S.L. Clark\*, K.A. Williams and J.P. Pitts. 2012. Historical biogeography of the arid-adapted velvet ant *Sphaerophthalma arota* (Hymenoptera: Mutillidae) reveals cryptic species. *Journal of Biogeography*. 39: 336-352.

**2011**

Forister, M.L., J.P. Jahner, K.L. Casner, **J.S. Wilson**, and A.M. Shapiro. 2011. The race is not to the swift: a long-term dataset reveals pervasive declines in California's low-elevation butterfly fauna. *Ecology*. 92: 2222-2235.

**Wilson, J.S.**, and J.P. Pitts. 2011. Pleistocene connection between the Nearctic Mediterranean and desert regions in the *Sphaerophthalma unicolor* species-complex (Hymenoptera: Mutillidae). *Insect Conservation and Diversity*. 4: 222-234.

**2010**

- Wilson, J.S.**, and J.P. Pitts. 2010. Phylogeographic analysis of the nocturnal velvet ant genus *Dilophotopsis* (Hymenoptera: Mutillidae) provides insights into diversification in the Nearctic deserts. *Biological Journal of the Linnean Society*. 101: 360-375.
- Wilson, J.S.**, and J.P. Pitts. 2010. Illuminating the lack of consensus among descriptions of earth history data in the North American deserts: A resource for biologists. *Progress in Physical Geography*. 34: 419-441.
- Pitts, J.P., **J.S. Wilson** and C.D. von Dohlen. 2010. Evolution of the nocturnal Nearctic Sphaerophthalminae velvet ants (Hymenoptera: Mutillidae) driven by Neogene orogeny and Pleistocene glaciation. *Molecular Phylogenetics and Evolution*. 56: 134-145.
- Wilson, J.S.**, and J.P. Pitts. 2010. Pleistocene diversification of the *Odontophotopsis unicornis* species-group (Hymenoptera: Mutillidae). *Annals of the Entomological Society of America*. 103: 555-565.
- Wilson, J.S.**, K.A. Williams, C.F. Gunnell\* and J.P. Pitts. 2010. Phylogeographic investigations of the widespread, arid-adapted antlion *Brachynemurus sackeni* Hagen (Neuroptera: Myrmeleontidae). *Psyche: A Journal of Entomology*. 2010: 1-7.
- Pitts, J.P., **J.S. Wilson**, K.A. Williams, and N.F. Boehme. 2010. Nocturnal velvet ant males (Hymenoptera: Mutillidae) of Deep Canyon, California including four new species and a fifth new species from Owens Lake Valley, California. *Zootaxa*. 2553: 1-34.
- Wilson, J.S.**, K.A. Williams, D.A. Tanner and J.P. Pitts. 2010. Nectaring by nocturnal velvet ants (Hymenoptera: Mutillidae). *The Southwestern Naturalist*. 55: 443-444.
- Wilson, J.S.**, K.A. Williams and J.P. Pitts. 2010. Preliminary assessment of velvet ant (Hymenoptera: Mutillidae) diversity in the deserts of Southern California. *Western North American Naturalist*. 70: 224-232.
- Wilson, J.S.**, L.E. Wilson, L.D. Loftis and T. Griswold. 2010. The montane bee fauna of north central Washington, U.S.A., with floral associations. *Western North American Naturalist*. 70: 198-207.

#### 2009

- Wilson, J.S.**, and S. Topham. 2009. The negative effects of barrier fencing on the desert tortoise (*Gopherus agassizii*) and non-target species: Is there room for improvement? *Contemporary Herpetology*. 2009(3): 1-4.
- Wilson, J.S.**, J.P. Pitts and C.D. von Dohlen. 2009. Lack of variation in nuclear genes among isolated populations of the sand dune restricted bee *Colletes stephensi* (Hymenoptera: Colletidae). *Journal of the Kansas Entomological Society*. 82: 316-320.
- Pitts, J.P. and **J.S. Wilson**. 2009. Description of the female of *Acrophotopsis* (Hymenoptera: Mutillidae) with synonymy of *Sphaerophthalma dirce*. *Journal of Hymenoptera Research*. 18: 205-211.
- Wilson, J.S.**, and J.P. Pitts. 2009. Species boundaries of *Sphaerophthalma unicolor* (Hymenoptera: Mutillidae): Is color useful for differentiating species? *Journal of Hymenoptera Research*. 18: 212-226.
- Pitts, J.P., **J.S. Wilson**, K.A. Williams, and N.F. Boehme. 2009. Velvet Ants (Hymenoptera: Mutillidae) of the Algodones Sand Dunes of California, USA. *Zootaxa*. 2131: 1-53.
- Wilson, J.S.**, O. Messinger and T. Griswold. 2009. Variation between bee communities on a sand dune complex in the Great Basin Desert, North America: Implications for sand dune conservation. *Journal of Arid Environments*. 73: 666-671.

#### 2008

- Wilson, J.S.**, T. Griswold, and O. Messinger. 2008. Sampling bee communities (Hymenoptera: Apiformes) in a desert landscape: Are pan traps sufficient? *Journal of the Kansas Entomological Society*. 81: 288-300.
- Wilson, J.S.**, and J.P. Pitts. 2008. Revision of Velvet Ant Genus *Dilophotopsis* Schuster (Hymenoptera: Mutillidae) by Using Molecular and Morphological Data, with Implications for Desert Biogeography. *Annals of the Entomological Society of America*. 101: 514-524.

#### 20076

- Wilson, J.S.** and J.P. Pitts. 2007. New host associations for new world spider wasps (Hymenoptera: Pompilidae). *Journal of the Kansas Entomological Society*. 80: 223-229.

Pitts, J.P., **J.S. Wilson**, and F.D. Parker. 2007. The Spider Wasps of Fiji (Hymenoptera: Pompilidae). *In*: Evenhuis, N.L. & Bickel, D.J. (eds.), Fiji Arthropods VII. Bishop Museum Occasional Papers. 91: 3-15.

### Peer Reviewed Notes and Research Reports

- Wilson, J.S.**, and B.G. Gall. 2011. *Thamnophis elegans* (Terrestrial Gartersnake) feeding behavior, prey subjugation by drowning. *Herpetological Review*. 42: 103.
- Wilson, J.S.** 2010. *Aspidoscelis tigris* (Western Whiptail) Diet. *Herpetological Review*. 41: 490-491.
- Wilson, J.S.**, and S. Topham. 2009. *Gopherus agassizii* (Desert Tortoise) Mortality. *Herpetological Review*. 40: 335-336.
- Wilson, J.S.**, and J.P. Pitts. 2009. Biodiversity and endemism in velvet ants (Hymenoptera: Mutillidae) of the Madrean Sky Islands: progress report. Submitted to the Richard Gilder Graduate School at the American Museum of Natural History.
- Wilson, J.S.**, K.A. Williams, and J.P. Pitts. 2008. Endemism and diversity in velvet ants (Hymenoptera: Mutillidae) of the southern California deserts. Final Report submitted to the California Desert Research Fund at The Community Foundation of Riverside and San Bernardino Counties.
- Wilson, J.S.**, L. Wilson, O. Messinger, and T. Griswold. 2006. Bees of the Okanogan National Forest, Tonasket Ranger District. Final Report submitted to The Okanogan National Forest, Tonasket Ranger District.
- Wilson, J.S.**, O. Messinger, and T. Griswold. 2005. The Bees of Dugway Proving Grounds. Final Report submitted to The Dugway Proving Grounds.
- Wilson, J.S.**, O. Messinger, and T. Griswold. 2003. The Bees of Dugway Proving Grounds. Annual Report submitted to The Dugway Proving Grounds.

### Funding

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- 2015** Red Butte Gardens Native bee Survey. **\$12,600.**
- 2014** RCDE New Faculty Success in Scholarship Grant (NFSSG). Investigating the evolution of color mimicry in velvet ants through population genomics. **\$10,000.**
- 2012** Contributed significantly to the writing of an NSF grant investigating they phylogenetic and phytochemical cascades in the evolution of tropical diversity (PIs A. Smilanich, L. Dyer, M. Forister, C. Jeffrey; University of Nevada, Reno). **\$389,545.**
- 2009** Theodore Roosevelt Memorial Grant from the American Museum of Natural History. Biodiversity and endemism in velvet ants (Hymenoptera: Mutillidae) of the Madrean Sky Islands. **\$1,000.**
- 2007** Research Grant from the California Desert Research Fund at The Community Foundation of Riverside and San Bernardino Counties. Endemism and diversity in velvet ants (Hymenoptera: Mutillidae) of the Southern California deserts. **\$3,194.**
- 2006** Theodore Roosevelt Memorial Grant from the American Museum of Natural History. Phylogeography of deserticolous nocturnal Mutillidae (Hymenoptera). **\$1,130.**

### Teaching Experience

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#### Courses Taught

##### *Utah State University*

- Biology 5800 (1-3 credits), Undergraduate Research (2012- present; every semester)
- Biology 1010 (3 credits), Biology and the Citizen (2012- present; every semester)
- Biology 1610/1620 (4 credits), General Biology I & II (2012- present; every semester)
- Biology 1610/1620 Laboratory (1 credit), General Biology I & II (2012- present; every semester)

PE 1245 (1 credit), Ultimate Frisbee, (Fall 2014)  
PE 1246 (1 credit), Intermediate Ultimate Frisbee, (Spring 2015)  
USU 1350 (3 credits), Life Sciences (Co-taught) (Fall 2010)

*Other Institutions*

Biology 314, Ecology and Population Biology (University of Nevada, Reno: Co-taught)

**Experience**

- 2012-present** **Instructor**, College Biology I & 2 (Biol 1610, 1620 and associated laboratory), Biology and the Citizen (Biol 1010), and Undergraduate Research (Biol 5800) Utah State University Tooele. I taught the weekly lectures and labs, designed curriculum, created lectures and tests and measured student learning through various assessment practices. I also lead undergraduates in research projects.
- 2012** **Instructor**, Ecology and Population Biology (Biol 314), University of Nevada, Reno. I co-taught the bi-weekly Ecology course. I was involved in course design, formulating lectures, and preparing quizzes and tests.
- 2010-2012** **Student Mentor**, University of Nevada, Reno, Nevada. Supervisor: Dr. Matthew Forister. I mentored two undergraduate students who researching the evolutionary ecology of various butterfly species. One of these students presented their research at regional and National conferences and is coauthoring a publication with me.
- 2010** **Temporary Instructor**, Life Sciences for non-Science Majors (USU 1350), Utah State University. I co-taught the non-majors life sciences course, which consisted of two sections of 200+ students each.
- 2009-2010** **Teaching Assistant Coordinator**, General Biology Laboratory (Biol 1610/1620), Utah State University. I trained teaching assistants how to perform the experiments in the weekly biology lab and advised them regarding appropriate teaching techniques. I also assisted in writing tests and quizzes and aided in the development of laboratory curriculum.
- 2009-2010** **Honors Laboratory Instructor**, General Biology Honors Laboratory (Biol 1610/1620), Utah State University. In addition to standard TA duties, I designed and led activities that encouraged problem solving and critical-thinking skills.
- 2006-2010** **Student Mentor**, Utah State University, Logan, Utah. Supervisor: Dr. James Pitts. I mentored five undergraduate students who were conducting molecular biology research on multiple arthropod groups. Two of these students presented their research at regional entomology conferences and coauthored publications with me.
- 2006-2010** **Assistant Laboratory Coordinator**, General Biology Laboratory (Biol 1610/1620), Utah State University. I set up the weekly biology lab to be used by 500-700 students. I ordered supplies and instructed teaching assistants on proper use of laboratory equipment.
- 2005-2010** **Laboratory Instructor**, General Biology Laboratory (Biol 1610/1620), Utah State University. For three sections of 30 students, I lectured for 20-30 min. and supervised the weekly three-hour lab. Lab topics ranged from the cell cycle and Mendelian genetics to fungi and plant diversity in Biology 1610 and from phylogenetics and evolution to animal behavior and diversity in Biology 1620.
- 2009** **Guest Lecturer**, General Biology (Biol 1620), Utah State University. I gave a series of lectures on animal diversity, evolution, behavior, and conservation to the general biology class (500+ students).
- 2008** **Wildlife Specialist**, Utah Envirothon, Moab, Utah. I taught 19 teams of high school students about bee diversity and conservation in the desert southwest, with particular focus on land-management issues.

- 2007**            **Wildlife Specialist**, Utah Envirothon, Salt Lake City, Utah. I taught 16 teams of high school students about adaptation and evolution, focusing principally on the adaptations of shorebirds.

## Presentations

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### Invited Seminars

- Wilson, J.S.** What can the large Müllerian mimicry complex found in North American velvet ants tell us about the evolution of mimicry? Biology Department Seminar, University of Nevada, Reno, Reno, Nevada. March 2015.
- Wilson, J.S.** Evolution of a large Müllerian mimicry complex in North American velvet ants. Entomology Department Seminar, The Pennsylvania State University, State College, Pennsylvania. February 2015.
- Wilson, J.S.** Ecological and evolutionary aspects of color mimicry in velvet ants. Biology Department Seminar, Northern Arizona University, Flagstaff, Arizona. January 2014.
- Wilson, J.S.** The evolution of color mimicry in velvet ants. Science and Health Symposium at Utah Valley University, Orem, Utah. October 2013.
- Wilson, J.S.** The evolution of mimicry in North American velvet ants. Zoology Department at Weber State University, Ogden, Utah. April 2013.
- Glassmire, A., **J.S. Wilson**, M.L. Forister, and L.A. Dyer. Complex relationships between host use and diversification across three trophic levels in two Neotropical forests. Ecology, Evolution and Sustainable use of Tropical Biodiversity meetings, Tato Grosso do Sul, Brazil. August 2012.
- Pitts, J.P. and **J.S. Wilson**. "Molecular Phylogenetics of the Vespoidea (Hymenoptera). Systematics and Biodiversity of Hymenoptera in Boreal and Hemiboreal Ecosystems Symposium, Toventorp forsknings station, Sweden. August 2012.
- Wilson, J.S.** Evolution and historical biogeography of nocturnal velvet ants (Hymenoptera: Mutillidae). Great Basin Bug Lab, University of Nevada, Reno, Nevada. November 2010.
- Wilson, J.S.** Evolution of nocturnal velvet ants (Hymenoptera: Mutillidae) in the deserts of North America. Utah State University Entomology Club, Logan, Utah. October 2008.
- Wilson, J.S.** and K.A. Williams. Importance and diversity of insects in Jackson, WY. Presented to the public at the Teton Science School, Jackson, Wyoming in conjunction with a Bioblitz and visit from E. O. Wilson. October 2007.

### Oral Presentations

- Wilson, J.S.** Investigating imperfect mimicry using the large North American velvet ant Müllerian mimicry complex. Entomological Society of America National meeting. Portland, OR, November 2014.
- Wilson, J.S.** The evolution of mimicry in North American velvet ants. 12th Biennial Conference of Science and Management on the Colorado Plateau. Flagstaff, AZ, September 2013.
- Wilson, J.S.**, K.A. Williams, J.P. Jahner, M.L. Forister, and J.P. Pitts. Introducing one of the worlds largest Müllerian mimicry complexes in North American velvet ants. Evolution society meetings. Snowbird, UT, June 2013.
- Glassmire, A.E., L.A. Dyer, C.S. Jeffrey, M.L. Forister, **J.S. Wilson**, and T. Walla. Is phytochemical variation in the tropical plant *Piper yanayacuense* Tepe causing diversification in the specialist caterpillar *Eois*? Pacific Branch Entomological Society of America meeting. Lake Tahoe, CA, April 2013.
- Wilson, J.S.**, M.L. Forister and L.A. Dyer. Complex relationships between host use and diversification across three trophic levels in two Neotropical forests. Entomological Society of America meeting. Reno, NV, November 2011.
- Wilson, J.S.** and J.P. Pitts. Phylogeography reveals cryptic speciation in *Sphaerophthalma arota* (Hymenoptera: Mutillidae). Entomological Society of America National meeting. San Diego, CA, December 2010.

- Williams, K.A., **J.S. Wilson**, and J.P. Pitts. 2010. Does the thistledown velvet ant (Hymenoptera: Mutillidae) mimic Creosote bush seeds? A phylogenetic approach. Entomological Society of America National meeting. San Diego, CA, December 2010.
- Wilson, J.S.** Historical biogeography and cryptic speciation in *Sphaerophthalma arota* (Hymenoptera: Mutillidae). Utah State University Biology Department Faculty Retreat. Logan, UT, August 2010.
- Wilson, J.S.** and J.P. Pitts. How did California's geologic history affect velvet ants (Hymenoptera: Mutillidae)? Pacific Branch Entomological Society of America meeting. Boise, ID, March 2010.
- Wilson, J.S.** and J.P. Pitts. Phylogeography of the *Sphaerophthalma unicolor* species-complex (Hymenoptera: Mutillidae). 2010 Intermountain Graduate Research Symposium. Logan UT, March 2010.
- Wilson, J.S.** and J.P. Pitts. 2008. Evolution of nocturnal velvet ants (Hymenoptera: Mutillidae): Driven by Neogene vicariance or Pleistocene climate change? Entomological Society of America National meeting. Reno, NV, November 2008.

**Poster Presentations** (\* Indicates undergraduate coauthor)

- Glassmire, A.E., C.S. Jeffrey, M.L. Forister, T. Parchman, J.P. Jahner, M. Leonard, C.C. Nice, J.S. Wilson, T. Wala, and L.A. Dyer. Phytochemical variation as a mechanism for diversification. Gordon Research Conference. Ventura, CA, March 2015.
- Sheehan, E.S.\* and **J.S. Wilson**. Exploring the thermal dynamics of velvet ants (Hymenoptera: Mutillidae) in the Desert and Western Mimicry Rings. Utah State University Undergraduate Research Symposium. Logan, UT, December 2014.
- Lawrence, C.\* and **J.S. Wilson**. Exploring Müllerian mimicry in North American velvet ants. Utah State University Undergraduate Research Symposium. Logan, UT, April 2014.
- Calvin, C.L.\* and **J.S. Wilson**. Using Nectar guides to increase bee sample size. Utah State University Undergraduate Research Symposium. Logan, UT, April 2013.
- Fodor, A.A.\* and **J.S. Wilson**. Molecular investigations into North American Jeweled Scarabs. Utah State University Undergraduate Research Symposium. Logan, UT, April 2013.
- Starley, L.\*, **J.S. Wilson**. Using pan traps to measure bee diversity. Utah State University Undergraduate Research Symposium. Logan, UT, April 2012.
- Glassmire, A.E., C.S. Jeffrey, M.L. Forister, **J.S. Wilson**, M. Leonard, T. Walla, J.S. Miller, E.J. Tepe, and L.A. Dyer. Phytochemical variation as a mechanism for diversification. Gordon Research Conference. Ventura, CA, March 2013.
- Smilanich A.M., M.L. Forister, L.A. Dyer, C.S. Jeffrey, L.A. Richards, C. Dodson, **J.S. Wilson**, E. Tepe, J. Whitfield, A. Jaramillo, J. Jahner, A. Glassmire, M. Leonard, K. McMahon, J. Miller, and K. Parks. Phylogenetic and Phytochemical Cascades in the Evolution of Tropical Biodiversity. Gordon Research Conference. Ventura, CA, March 2013.
- Starley, L.\*, J.P. Jahner, **J.S. Wilson**. Using pan traps to measure bee diversity: size does matter. Utah State University Undergraduate Research Symposium. Logan, UT, December 2012.
- Sneck, M.E.\*, D.D. Murphy, **J.S. Wilson**, and M.L. Forister. Isolation in the desert: a phylogenetic study of the Pallid Dotted-Blue (*Euphilotes pallescens*). 96<sup>th</sup> Ecological Society of America Annual Meeting. Austin, TX, August 2011.
- Sneck, M.E.\*, D.D. Murphy, **J.S. Wilson**, and M.L. Forister. Isolation in the desert: a phylogenetic study of the Pallid Dotted-Blue (*Euphilotes pallescens*). University of Nevada Undergraduate Research Symposium. Reno, NV, April 2011.
- Gunnell, C.\*, **J.S. Wilson**, and J.P. Pitts. Do phylogenetic relationships based solely on ITS1 & 2 adequately represent evolution? Utah State University Undergraduate Research Symposium. Logan, UT, December 2010.
- Clark, S.\*, **J.S. Wilson**, and J.P. Pitts. Is *Sphaerophthalma arota* (Hymenoptera: Mutillidae) a single species?: Biogeography and systematics of a cryptic species-complex. Pacific Branch Entomological Society of America meeting. Boise, ID, March 2010.
- Gunnell, C.\*, **J.S. Wilson**, D.B. Wahl, and J.P. Pitts. Investigating the endemism of *Aphonopelma* species (Araneae: Theraphosidae) in California's southern coast ranges.

Pacific Branch Entomological Society of America meeting. Boise, ID, March 2010.

\*Awarded "Outstanding Poster" at the USU Research Symposium.

**Wilson, J.S.** and J.P. Pitts. Phylogeographic patterns in a widespread velvet ant (Hymenoptera: Mutillidae): Is the Colorado Plateau simply an extension of the Great Basin Desert? 2009 Intermountain Graduate Research Symposium. Logan, UT, September 2009.

**Wilson, J.S.** and J.P. Pitts. What is driving diversification in the desert? Evolution of *Dilophotopsis* (Hymenoptera: Mutillidae). Entomological Society of America National meeting. San Diego, CA, December 2007.

**Wilson, J.S.** and J.P. Pitts. The secret life of a velvet ant (Hymenoptera: Mutillidae): Cryptic patterns of diversity on the Colorado Plateau. Ninth Biennial Conference of Research on the Colorado Plateau. Flagstaff, AZ, October 2007.

Pitts, J.P., **J.S. Wilson**, and K.A. Williams. Phylogenetics of the Nearctic Nocturnal velvet ant genus *Odontophotopsis* Viereck (Hymenoptera: Mutillidae). Pacific Branch Entomological Society of America meeting. Portland, OR, March 2007.

**Wilson, J.S.** and J.P. Pitts. Phylogeography of the deserticolous velvet ant *Dilophotopsis concolor* (Hymenoptera: Mutillidae). Pacific Branch Entomological Society of America meeting. Portland, OR, March 2007.

## Research Experience

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- 2012-present** Assistant Professor, Utah State University Tooele. I study various aspects of evolutionary biology and ecology to investigate the history and future of biodiversity, with a particular focus on diversification in insects.
- 2011-2012** Postdoctoral Fellow, University of Nevada, Reno. Supervisor: Dr. Matt Forister. Duties: Collect and analyze genomic-level data from various butterflies in order to study the genomic consequences of hybridization.
- 2010-2011** Postdoctoral Fellow, University of Nevada, Reno. Supervisor: Dr. Matt Forister and Lee Dyer. Duties: Collect and analyze molecular data from various butterflies and moths in order to study coevolutionary patterns and historical biogeography.
- 2005-2010** PhD candidate, Utah State University, Logan, Utah. Supervisor: Dr. James Pitts. Duties: Collected molecular data from multiple arid-adapted arthropod species in order to examine patterns of diversification in the Nearctic deserts.
- 2006-2010** Research Assistant, Utah State University, Logan, Utah. Supervisor: Dr. James Pitts. Duties: Conducted surveys for the red imported fire ant in southern Utah as a larger project funded by USDA-APHIS.
- 2005** Biological Aid, Bioekistic Biological Consulting, St. George, Utah. Supervisor: Marshall Topham. Duties: Surveyed public lands for sensitive reptiles, amphibians, and birds prior to proposed utility work.
- 2004-2005** Biological Technician, Utah Valley University, Orem, Utah. Supervisor: Dr. Catherine Stephen. Duties: Assisted in the study of the phylogeographic patterns of iguanas of the Lesser Antilles using mitochondrial DNA.
- 2003-2005** Biological Technician, USDA-ARS Bee Biology and Systematics Laboratory, Logan, Utah. Supervisor: Dr. Terry Griswold. Duties: Investigated the diversity and biogeographical patterns of native bees from multiple arid environments in Utah.
- 2004** Biological Technician, USFS Okanogan-Wenatchee National Forest, Tonasket Ranger District, Tonasket, Washington. Supervisor: Larry Loftis. Duties: Investigated native bee diversity in the Tonasket Ranger District and recorded bee/plant interactions.

## Advising

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### Undergraduate students



Christian O'Rarden: 2015, Mimicry and ecological niche modeling in spider wasps (Utah State University Tooele).  
Erica Sheehan: 2014, Mimicry in diurnal velvet ants (Utah State University Tooele).  
Chuck Lawrence: 2014, Mimicry in velvet ants and spider wasps (Utah State University Tooele).  
Carmelle Calvin: 2013-2014, Increasing bee sample sizes through pan trapping (Utah State University Tooele).  
Cameron Anderson: 2013, Mimicry in velvet ants (Utah State University Tooele).  
Aaron Fodor: 2013, Molecular investigations of jeweled scarabs (Utah State University Tooele).  
Lisa Starley: 2012-2013, Sampling bee diversity using pan traps (Utah State University Tooele).  
Divya Narala: 2011-2012, Genomic consequences of selection in butterflies (University of Nevada, Reno).  
Michelle Sneek: 2010-2011, Molecular techniques, butterfly genetics and conservation (University of Nevada, Reno), currently a PhD student, Rice University, Huston TX.  
Jill Warnock: 2010, Molecular techniques (Utah State University).  
Clayton Gunnell: 2008-2010, Molecular techniques, tarantula phylogeography, antlion diversification – \*awarded undergraduate researcher of the year (Utah State University), currently a MS student in a dental program at Creighton University, Omaha NE.  
Sarah Clark: 2008-2010, Molecular techniques, velvet ant phylogenetics and evolution (Utah State University), currently a MS student at Utah State University, Logan, UT.  
Andrew Ermer: 2008-2010, Velvet ant natural history and diversity (Utah State University).  
Jake Jones: 2009, Molecular techniques, velvet ant evolution (Utah State University) currently in medical school, University of Utah, Salt Lake City, UT.

#### **Committee member for graduate students**

Emily Sadler, Utah State University  
Jon Koch, Utah State University

### **Service**

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#### **Professional Service**

##### **Peer Reviewer for Grants and Manuscripts**

*Biology for the Informed Citizen, 2<sup>nd</sup> edition (Oxford University Press)* (One chapter, 2015)  
*Systematic Entomology* (one manuscript, 2015)  
*PLoS ONE* (one manuscript, 2014)  
*Insect Conservation and Diversity* (one manuscript, 2014)  
*Journal of Insect Science* (one manuscript, 2014)  
*Botanical Journal of the Linnean Society* (one manuscript, 2013)  
*Journal of Biogeography* (one manuscript, 2013)  
*The Canadian Entomologist* (two manuscripts 2012, 2013)  
*Great Lakes Entomologist* (one manuscript, 2012)  
*International Journal of Ecology* (one manuscript, 2011)  
*Journal of Natural History* (one manuscript, 2011)  
USDA-ARS Pollinating insects – Biology, Management and Systematics Research Laboratory (one grant proposal, 2011)  
*Journal of the Kansas Entomological Society* (one manuscript, 2010)  
*Western North American Naturalist* (one manuscript, 2010)

#### **University Service**

**2014** Served as a member of the Faculty Excellence Committee. Duties: Plan faculty retreat for the regional campuses, review grant proposals, review nominations for faculty awards.

- 2013** Recorded a public service announcement advertising for USU-Tooele that was aired at the local movie theater and on local cable TV stations.

### Community Service and Outreach

- 2011** Invited Scientist at the Kid Zone Family Camp, July 2011. Sagehen Creek Research Station, CA: Taught camp participants about insects and led a nature walk to collect insects.
- 2011** Invited Scientist at the Galena Creek summer camp, June 2011. Reno, NV: Taught camp participants about insects and led a nature walk to collect insects.
- 2010** Science fair judge at the Thomas Edison Charter School, February 2010. North Logan, UT.
- 2009** Science fair judge for the community science fair for home schooling families, March 2009. Logan, UT.
- 2007** Invited Scientist at Adams Elementary School, March 2007. Logan, UT: Taught students and parents about entomology.

### Research Featured in the Press

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- 2013** Research featured in *Science News*. "Don't mess with fluffy" by Susan Milius.
- 2013** Research highlighted on SciLogs. "Velvet look-alikes: a most astonishing mimicry complex" by Christopher Bundle. <http://www.scilog.com/expiscor/velvet-look-alikes-a-most-astonishing-mimicry-complex/>.
- 2013** Research featured in *The Standard Examiner*: "USU educator studies velvet ants for clues to their evolution" by Nancy VanValkenburg. <http://www.standard.net/stories/2013/01/09/usu-educator-studies-velvet-ants-clues-their-evolution>.
- 2011** Research and a student I mentored featured in the *Utah Agricultural Experiment Station News*: "Clayton Gunnell – Getting Antsy" by Rhett Wilkinson, <http://uaes.usu.edu/html/aes-news/clayton-gunnell-getting-antsy/>.
- 2010** Research featured in *The New York Times*: "A Reason for Diversity of Ants May Not Hold" by Sindya N. Bhanoo, <http://www.nytimes.com/2010/08/17/science/17obant.html?ref=science>.
- 2010** Research featured on Utah Public Radio: "Velvet Ants and Climate Change" <http://stream.publicbroadcasting.net/production/mp3/upr/local-upr-923244.mp3>.
- 2010** Research featured in *The Salt Lake Tribune*: "USU professor: St. George 'ants' are evolution clue" <http://www.sltrib.com/sltrib/home/50113464-76/ants-pitts-species-velvet.html.csp>.
- 2010** Research featured in *KSL News*: "UT professor says velvet ants are evolution clue", <http://www.ksl.com/?nid=148&sid=12006776&hl=5>.
- 2010** Research featured in the *Harold Journal*: "USU entomologist finds evolution clues in Utah's 'velvet ants'" by Kim Burgess, [http://news.hjnews.com/news/article\\_c7774c2c-a5c6-11df-a031-001cc4c002e0.html?mode=story](http://news.hjnews.com/news/article_c7774c2c-a5c6-11df-a031-001cc4c002e0.html?mode=story).
- 2010** Research featured in *Utah State Today*: "Sub-Zero Heroes: USU Entomologist says Ice Age Fostered New Species" by Mary-Ann Muffoletto, <http://www.usu.edu/ust/index.cfm?article=47973>.

### Awards and Honors

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- 2014** Researcher of the year. Utah State University Regional Campuses and Distance Education. Awarded August 2014.

- 2014** Professor of the year. Utah State University - Tooele. Awarded April 2014.
- 2010** First Place in Student Oral Competition at the Entomological Society of America Annual Meeting (Pacific Branch), held in Boise, Idaho on April 11-13 2010.
- 2010** Third Place in Lecture Session at the 2010 Intermountain Graduate Research Symposium, held in Logan, Utah on March 31 2010.
- 2008** Second Place in Student Oral Competition for President's Prize in Revisions and Evolution at the Entomological Society of America National Meetings, held in Reno, Nevada on November 16-19 2008.

### **Professional Society Memberships**

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Society for the Study of Evolution  
Entomological Society of America  
International Society of Hymenopterists  
Southwestern Association of Naturalists