

Angela M. Smilanich

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Professional Appointments

- 2013-Present: Assistant Professor Tenure-Track, Biology Department, University of Nevada, Reno
- 2011-2013: Research Assistant Professor, Biology Department, University of Nevada, Reno
- 2010-2011: Affiliate Assistant Research Professor, Desert Research Institute, Reno, Nevada
- 2010-2011: Adjunct Faculty, Biology Department, University of Nevada, Reno
- 2008-2010: Postdoctoral Scholar, Biology Department, Wesleyan University, Middletown, CT

Teaching Experience

- 2011-present: Instructor for Field Ecology (BIOL 394) and Non-majors Biology (BIOL 100), Biology Department, University of Nevada, Reno
- 2002-2008: Teaching Assistant for Majors Biology Lab, Ecology Lab, and Entomology Lab, Tulane University, New Orleans, LA

Professional Preparation

- 2002-2008: Ph.D Dissertation Research, Department of Ecology and Evolutionary Biology, Tulane University, New Orleans, LA.
- 1998-2002: B.S. Biology Department, Colorado Mesa University, Grand Junction, CO.

Awards

- **Collaborative Research:** Understanding the evolution of diet breadth through ecoimmunology, National Science Foundation 2015-2018, Lead PI—\$314,000
- **Collaborative Research:** Dimensions US-Biota Sao Paulo: Chemically mediated multi-trophic interaction diversity across tropical gradients, National Science Foundation, 2014-2019, coPI—\$1,502,447 (REU Supplement funding totaling \$40,000)
- Research Coordination Network in Ecoimmunology Research Exchange Award, 2013 - \$2,177
- **Collaborative Research:** Phylogenetic and phytochemical cascades in the evolution of tropical biodiversity, National Science Foundation 2012-2015, Lead PI – \$383,048 (REU Supplement funding totaling \$58,000)
- Pan-American Studies Institute, Tropical Ecology Workshop, Tambopata, Peru, 2008
- ESA Travel Award for International Congress of Entomology, 2008 - \$2,000
- Tulane EEB Departmental Research Award, 2007- \$1,000
- Organization for Tropical Studies Doctoral Fellowship, 2007 -\$1,910
- Association for Women in Science Pre-doctoral Award, 2005 - \$1,000
- Sigma Xi, Grants in Aid of Research, 2004 – \$190
- Post-course Award, Organization for Tropical Studies, 2003 - \$500
- Summer Research Fellowship, Center for Latin American Studies, 2003 – \$1,300

Publications

Smilanich A.M., Langus T.C., Lydia L., Dyer L.A., Harrison J.G., Hsueh J., Teglas M.B. 2018. Host plant associated enhancement of immunity and survival in virus infected caterpillars. *Journal of Invertebrate Pathology* 151:102-112.

- Glassmire A.E., Jahner J.P., Badik K.J., Forister M.L., **Smilanich A.M.**, Dyer L.A., Wilson J.S. 2017. The soil mosaic hypothesis: a synthesis of multi-trophic diversification via soil heterogeneity. *Ideas in Ecology and Evolution* 10:20-26.
- Jahner J.P., Forister M.L., Parchman T.L., **Smilanich A.M.**, Miller J.S., Wilson J.S., Walla T.R., Tepe E.J., Richards L.A., Quijano-Abril M.A., Glassmire A.E., Dyer L.A. 2017. Host conservatism, geography, and elevation in the evolution of a Neotropical moth radiation. *Evolution* 71:2885-2900.
- Hansen A.C., Glassmire A.E., Dyer L.A., and **Smilanich A.M.** 2017. Patterns in parasitism frequency explained by diet and immunity. *Ecography* 40:803-805.
- Richards L.A., Glassmire A.E., Ochsensrider K.M., **Smilanich A.M.**, Dodson C.D., Jeffrey C.S., and Dyer L.A. 2016. Phytochemical diversity and synergistic effects on herbivores. *Phytochemistry Reviews* 15:1153-1166.
- Glassmire A.E., Jeffrey C.S., Forister M.L., Parchman T.L., Nice C.C., Jahner J.P., Wilson J.S., Walla T.R., Richards L.A., **Smilanich A.M.**, Leonard M.D., Morrison C.R., Simbana W., Salagaje L.A., Dodson C.D., Miller J.S., Tepe E.J., Villamarin-Cortez S., and Dyer L.A. 2016. Intraspecific phytochemical variation shapes community and population structure for specialist caterpillars. *New Phytologist* 212:208-219.
- Smilanich A.M.**, Fincher R.M., and Dyer L.A. 2016. Does plant-apparency matter? 30 years of data provide limited support but reveal clear patterns of the effects of plant chemistry on herbivores. *New Phytologist* 210: 1044-1057
- Richards L. A., Dyer L. A., Forister M. L., **Smilanich A. M.**, Dodson C. D., Leonard M. D., and Jeffrey C. S. 2015. Phytochemical diversity drives diversity of tropical plant-insect communities. *Proceedings of the National Academy of Sciences*. 112: 10973-10978
- Forister M. L., Novotny V., Panorska A. K., Baje L., Basset Y., Butterill P. T., Cizek L., Coley P. D., Dem F., Diniz I. R., Drozd P., Fox M., Glassmire A., Hazen R., Hrcek J., Jahner J. P., Kama O., Kozubowski T. J., Kursar T. A., Lewis O. T., Lill J., Marquis R. J., Miller S. E., Morais H. C., Murakami M., Nickel H., Pardikes N., Ricklefs R. E., Singer M. S., **Smilanich A. M.**, Stireman J. O., Villamarín-Cortez S., Vodka S., Volf M., Wagner D. L., Walla T., Weiblen G. D., and L. A. Dyer. 2015. The global distribution of diet breadth in insect herbivores. *Proceedings of the National Academy of Sciences* 112:442-447
- Singer, M.S., Mason, P.A., and **Smilanich A.M.** 2014. Ecological immunology mediated by diet in herbivorous insects. *Integrative and Comparative Biology* 54:913-921.
- Mason P.A., **Smilanich A.M.**, and Singer M.S. 2014. Reduced consumption of protein-rich foods follows immune challenge in a polyphagous caterpillar. *Journal of Experimental Biology* 217:2250-2260.

Richards L.A., Lampert E.C., Bowers M.D., Dodson C.D., **Smilanich** A.M. and Dyer L.A. 2012. Synergistic effects of iridoid glycosides on the survival, development, and immune response of a specialist caterpillar (*Junonia coenia* Nymphalidae). *Journal of Chemical Ecology* 38:1276-1284.

Smilanich A.M. and Dyer L.A. 2012. Effects of banana plantation pesticides on the immune response of lepidopteran larvae and their parasitoid natural enemies. *Insects* 3:616-628.

Shlichta J.G., and **Smilanich** A.M. 2012. Immune responses and their potential role in insect outbreaks. *In Insect Outbreaks Revisited*, pgs. 47-70, editors Pedro Barbosa, Deborah Letourneau and Anurag Agrawal 2nd. Ed. Wiley-Blackwell.

Dyer, L.A., Wagner, D.L., Greeney, H.F., **Smilanich**, A.M., Massad, T.M., Robinson, M. Fox, M., Hazen, R., Glassmire, A., Pardikes, N., Fredrickson, K., Pearson, C., Gentry, G.L., and J.O. Stireman III. 2012. Novel insights into tritrophic interaction diversity and chemical ecology using 16 years of volunteer supported research. *American Entomologist* 58:15-19.

Greeney H.F., Dyer L.A., and **Smilanich** A.M. 2012. Feeding by lepidopteran larvae is dangerous: A review of caterpillars' chemical, physiological, morphological, and behavioral defenses against natural enemies. *Invertebrate survival journal* 9:7-34.

Massad T.J., Fincher R.M., **Smilanich** A.M., and Dyer L.A. 2011. A quantitative evaluation of major plant defense hypotheses, nature versus nurture, and chemistry versus ants. *Arthropod-Plant Interactions* 5: 125-139.

Smilanich A.M., Vargas J., Dyer L.A., and Bowers M.D. 2011. Effects of ingested secondary metabolites on the immune response of a polyphagous caterpillar (*Grammia incorrupta*). *Journal of Chemical Ecology* 37:239-245.

Smilanich A.M., Mason P.A., Sprung L., Chase T.R., and Singer M.S. 2011. Complex effects of parasitoids on pharmacophagy and diet choice of a polyphagous caterpillar. *Oecologia* 165: 995-1005.

Richards L.A., Dyer, L.A., **Smilanich** A.M. and Dodson C.D. 2010. Synergistic effects of amides from two *Piper* species on generalist and specialist herbivores. *Journal of Chemical Ecology* 36:1105-1113

Smilanich A.M., Dyer L.A., Chambers J.Q. and Bowers M.D. 2009. Immunological cost of chemical defence and the evolution of herbivore diet breadth. *Ecology Letters* 12: 612-621

Smilanich A.M., Dyer L.A., and Gentry G.L. 2009. The insect immune response and other putative defenses as effective predictors of parasitism. *Ecology* 90:1434-1440.

Smilanich A.M., Dyer L.A., and Gentry G.L. 2009. Caterpillar immune response and parasitism. *ESA Bulletin: Photo Gallery* 90:247-253.

Dyer L.A., Dodson C.D., Stireman J.O., Tobler M.A., **Smilanich** A.M., Fincher R.M., and Letourneau D.K. 2003. Synergistic effects of three *Piper* amides on generalist and specialist herbivores. *Journal of Chemical Ecology* 29:2499-2514.

Invited Presentations

Smilanich A.M., Mason P.A., Muchoney N., Mo C., Teglas M. and Bowers, M.D. 2016. Host range expansion and the insect immune response. International Congress of Entomology. Symposium: From diet breadth to diversification: understanding host shifts in phytophagous insects.

Smilanich A.M. 2016. The Ecoimmunology of diet breadth. University of Colorado, Boulder. Host: M. Deane Bowers

Smilanich A.M. and Langus T. 2015. The effects of plant chemistry, egg microbes, and a densovirus on the immune response of a specialist caterpillars. Lepidopterists' Society Meeting, Lepidopterists' Society. Graduate student organized symposium

Smilanich A.M. 2012. The evolution of diet breadth from a bottom-up and top-down perspective. University of California, Berkeley. Seminar Series. Host: Paul Fine

Smilanich A.M. 2011. The evolution of diet breadth from a bottom-up and top-down perspective. Middlebury College. Seminar Series. Host: Helen Young

Smilanich A.M. 2011. Self-medication vs. self-toxicity in generalist and specialist herbivores. University of California, Davis. Seminar Series. Host: Graduate student selection

Smilanich A.M. 2010. Self-medication vs. self-toxicity in generalist and specialist herbivores. University of Nevada, Reno. Colloquium Series. Host: Matthew Forster

Smilanich A.M. 2009. Variation in plant chemical defense and the physiological response of generalist and specialist herbivores. City University of New York, Stanton Island. Invited Seminar. Host: Robert Matlock

Smilanich A.M. 2009. Determinants of herbivore host-plant choice. Wesleyan University. Seminar Series.

Smilanich A.M. 2008. Variation in plant chemical defense and the physiological response of generalist and specialist herbivores. University of Maryland, College Park, MD. Invited Seminar. Host: Pedro Barbosa.

Smilanich A.M., Dyer L.A., Bowers M.D., and Chamber J.Q. 2008. A multi-trophic view of insect defenses: influences of plant chemistry on parasitoid success. International Congress of Entomology, Durban, South Africa. Invited Oral Presentation.

Meeting Presentations

Muchoney N.D., Mason P.A., Teglas M.B., Hsueh J., Bowers M.D., and Smilanich A.M. 2016. Utilization of a novel host plant impairs immunity and increases pathogen prevalence in the wild populations of *Euphydryas phaeton*. International Congress of Entomology, Orlando FL. Poster Presentation.

Mo C., Bowers M.D., Mason P.A., Teglas M.B., Hsueh J., Dodson C.D., and Smilanich A.M. 2016. Host plant effects on buckeye (*Junonia coenia*) survival and immunity during infection with the *Junonia coenia* densovirus. International Congress of Entomology, Orlando, FL. Poster Presentation.

Dyer L.A., Richards L.A., Parchman T.L., Smilanich A.M., Jeffrey C.S., Forister M.L., Tepe E., Stireman J.O., Massad T.J., Kato M.J., and Freitas A.V.L. 2016. Dimensions of US-Biota Sao Paulo: Chemically mediated multi-trophic interaction diversity across tropical gradients. Dimensions of Biodiversity Panel PI meeting, Washington, D.C. Poster Presentation.

Smilanich, A.M., and Langus, T.C. 2014. Interactive effects of host plant chemistry, egg microbes, and a densovirus on the immune response of a specialist caterpillar. Research Coordination Network on Ecoimmunology. Woods Hole, MA. Oral Presentation.

Smilanich, A.M. 2013. The effects of iridoid glycosides on the lepidopteran immune response. Entomological Society of American Annual Meeting, Austin, Texas. Symposium Presentation.

Smilanich A.M., Forister M., Dyer L.A., Jeffrey C., Richards L.A., Dodson C., Wilson J., Tepe E., Whitfield J., Jaramillo A., Jahner J., Glassmire A., Leonard M., McMahon K., Miller J., Parks K. 2013. Phylogenetic and Phytochemical Cascades in the Evolution of Tropical Biodiversity. Gordon Research Conference, Ventura, California. Poster Presentation.

Smilanich A.M., Mason P.A., Singer, M.S. 2010. The immune response in generalist and specialist herbivores. Entomological Society of America Annual Meeting, San Diego, California. Oral Presentation.

Smilanich A.M., Mason, P.A., Sprung, L., Chase, T., and Singer, M.S. 2009. Influences of plant chemistry and parasitism on host plant selection by a polyphagous caterpillar, *Grammia incorrupta*. Ecological Society of America Annual Meeting, Albuquerque, New Mexico. Oral Presentation.

Smilanich A.M., Dyer L.A., Bowers M.D., and Chamber J.Q. 2008. A multi-trophic view of insect defenses: influences of plant chemistry on parasitoid success. Entomological Society of America Annual Meeting, Reno, Nevada. Oral Presentation.

Smilanich A.M., Dyer L.A., Bowers M.D., and Chamber J.Q. 2007. Costs of sequestration in the buckeye caterpillar (*Junonia coenia*). Entomological Society of America Annual Meeting, San Diego, California. Oral Presentation.

Smilanich A.M., Dyer L.A., Bowers M.D., and Chambers J.Q. 2007. Costs of sequestration in the buckeye caterpillar (*Junonia coenia*). Ecological Society of America Annual Meeting, San Jose, California. Oral Presentation.

Outreach Activities

- Lead and coordinated 2-5 Earthwatch volunteer groups per year. Groups consist of high school students, K-12 teachers, and HSBC banking employees. 2001-present
- Served as faculty field mentor for the Organization for Tropical Studies field course in Costa Rica 2015
- Participated insect demonstration for Big Brothers Big Sisters science event. 2013, 2014
- Insect demonstration for Reno Head Start preschool 2012
- Assisted with insect mini-course for local elementary schools in coordination with the Great Basin Institute. 2012
- Board member for STEM committee at Veterans Memorial Elementary School. 2011
- Outreach to elementary schools in Wallingford, CT, coordinating field and lab days for 4th grade students. 2009

2002-2008

- Outreach to local New Orleans elementary schools and high schools, displaying collected and live insects.

Student Mentorship

- Mentor for Nevada Undergraduate Research Award (GURA) Justine Dale. 2016-2017
- Mentor for Undergraduate Research Opportunity Program (UROP) Shahil Pema. 2015-2016
- Mentor for numerous high school students from the Davidson Academy at UNR. 2013-present
- Advise undergraduate students from NSF supplemental funding, including REUs, ROA, and IREUs. 2012-present
- Committee member for Ph.D students in Ecology, Evolution, and Conservation Biology Program at University of Nevada, Reno 2011-present
- Advised numerous undergraduates in postdoctoral lab at Wesleyan University 2008-2010
- Co-advised undergraduate student from University of Connecticut working under David Wagner. 2009-2010
- Co-advised three undergraduate students through the Louisiana Alliance for Minorities Program (LAMP). 2005,2007
- Trained graduate students and technician from M.D. Bowers and P. Barbosa laboratories 2007

Peer Review

- National Science Foundation, Czech Republic Science Foundation, Wellcome Trust
- Journals: *Proceedings of the National Academy of Science, Journal of Insect Physiology, Biological Journal of the Linnean Society, Journal of the Lepidopterists Society, Proceedings of the Royal Society, Ecology Letters, Ecological Monographs, Basic and Applied Ecology, Oecologia, Behavioral Ecology, Ecosphere, Insect Molecular Biology, Ecological Entomology, Ecological Research, Functional Ecology, Heredity, Annals of Entomology, International Research Journal of Agricultural Science, Journal of Chemical Ecology, Biotropica, Arthropod Plant Interactions, Journal of Ecology*

Collaborations and Other Affiliations

Collaborators

Tara Massad (Rhodes College)
Massuo Kato (University of Sao Paulo)
Peri Mason (Bard College)
Matt Forister (University of Nevada, Reno)
Lora Richards (University of Nevada, Reno)
Chris Jeffrey (University of Nevada, Reno)
David Wagner (University of Connecticut)
Deane Bowers (University of Colorado)
Malia Fincher (Samford College)
Craig Dodson (University of Nevada, Reno)
Mylene Ogliastro (University of Montpellier, France)

Affiliations

Member—Research Coordination Network in Ecoimmunology
Entomological Society of America
Ecological Society of America