

## 2016 Curriculum vitae



**NAME:** Jennifer S. Thaler  
**DEPARTMENT/UNIT:** Entomology  
Joint appointment in Ecology & Evolutionary Biology  
**TITLE:** Professor  
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## **BACKGROUND**

### **EDUCATION**

<b><u>Year</u></b>	<b><u>Degree</u></b>	<b><u>Institution</u></b>
1999	Ph.D., Entomology (Advisor: Dr. Richard Karban)	University of California at Davis
1993	B.A., Biology <i>Cum Laude</i>	Wellesley College

### **ACADEMIC RANK**

Professor: 2015 to present, Cornell University

### **PRIMARY DEPARTMENTAL/UNIT PROGRAM AREA**

Insect ecology, 60% research and 40% teaching

### **AREAS OF EXPERTISE**

Population and community ecology, plant-insect interactions, tri-trophic interactions, chemical ecology

### **PROFESSIONAL EXPERIENCE**

<b><u>Year</u></b>	<b><u>Experience</u></b>
2015-present	Cornell University, Professor of Entomology
2006-2015	Cornell University, Associate Professor of Entomology
2004-2006	Cornell University, Assistant Professor of Entomology
2000-2004	University of Toronto, Assistant Professor of Botany
1999-2000	Wageningen Agricultural University, Postdoctoral Researcher in the Laboratory of Entomology, Wageningen, Advisor: Dr. Marcel Dicke
1999	University of California at Davis, Postdoctoral Researcher in the Department of Plant Pathology, Advisor: Dr. Richard Bostock
1994-1999	University of California at Davis, Teaching and Research assistantships
1992-1993	Harvard Forest, Research Assistant, Dr. Richard Boone and Dr. Richard Lent

### **SABBATICALS AND STUDY LEAVES (past 10 years)**

2010	Insect Physiology Lab. University of Arizona (Goggy Davidowitz): Physiological responses of <i>Manduca sexta</i> to host plant quality and predation risk. (half-year)
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**HONORS AND AWARDS**

Cornell Center for Sustainable Future Faculty Fellow: 2011 to present  
 Excellence in Ecological Entomology - The Royal Entomological Society's Awards for Scientific Writing, Runner up (2002)  
 Premiers Research Excellence Award, Government of Ontario (2000)  
 American Society of Naturalists Young Investigators Award (2000)  
 Entomological Society of America, 2<sup>nd</sup> prize, oral presentation (1998)  
 ARCS Scholar (1996)  
 Sigma Xi

**REPRESENTATIVE ACADEMIC RESPONSIBILITIES****GRANT SUPPORT****Active Grants**

Thaler	2015-2020
Federal Multistate Funds	\$148,000
Harnessing Chemical Ecology to Address Agricultural Pest and Pollinator Priorities	
Thaler	2014-2017
USDA-AFRI	\$380,000
Pest Responses to Predation Risk: Maximizing Biological Control of the Colorado Potato Beetle	
Thaler	2014-2017
Federal Formula Funds	\$88,500
Chemical ecology of predator odors for pests of potato and tomato plants	

**Past funding awards (past 5 years)**

Nyrop, Thaler	2012-2014
Federal Formula Funds	\$35,600
Do non-lethal predator effects enable or hinder pest management	
Thaler	2011-2014
Federal Formula Funds	\$63,000
Enhancing Effectiveness of Native Generalist Predators to Reduce Colorado Potato Beetle Damage on Potato Plants	
Thaler, Poveda, Gomez, Jander	2011-2013
Atkinson Center Sustainable Future	\$107,000
Sustainable pest management and yield increase strategies through ecological, genetic, and economic analysis	

**TEACHING AND ADVISING RESPONSIBILITIES****Undergraduate Courses (past 10 years)**

Ecology and the Environment BIOEE 1610, 2011, 2014, 2015 and Even spring, 3cr  
 Insect Ecology ENTOM4550/BIOEE4550, Even fall, 4 cr  
 Chemical Ecology ENTOM 3690/BIONB3690/BIOEE3690, Every spring, 3 cr

**Graduate Courses**

Plant-Insect Interactions Discussion Group, BIOEE/ENTOM 7640 (every semester 2004-present)

Current Topics in Entomology, ENTOM 7670 (2008-2010)

### **International Graduate Courses**

Organization for Tropical Studies, Plant Animal Interactions in the Tropics, 2010, La Selva, Costa Rica, Invited Instructor

Cornell University, Transnational Learning, Insect Ecology 2010

### **Undergraduate Advisees (Current)**

**Biological Science majors present (8):** Taylor Heaton, Rachel Norris, Laila Abdul, Oksana Bihun, Andrew Cartwright, Cody Clarson, Marissa Martinez, John Tawil

**Entomology majors: present (4):** Serena Schatz, Marina Mann, Rachel Norris, Erin Krichilsky

### **GRADUATE FIELD MEMBERSHIPS**

Field of Entomology

Field of Ecology and Evolutionary Biology

### **GRADUATE MAJORS**

Zoe Getman-Pickering (2014-) PhD in Entomology

Nicholas Aflitto (2016-) PhD in Entomology

Suzi Claflin (2011-2016) PhD in Entomology (co-advised with Alison Power)

Sara Hermann (2012-2015) MS in Entomology. Non-consumptive effects of predatory spined soldier bug on Colorado potato beetle prey

Monica Frank Kersch Becker (2008-2014) PhD in Ecology and Evolutionary Biology.

Interactive Effects of Plant Defenses and Predators on Herbivore Population Dynamics

Scott McArt (2006-2012) PhD in Entomology. Plant genotypic diversity and its influence on arthropod communities.

### **GRADUATE MINORS**

Maxwell Helmberger (2015-) MS candidate in Entomology

Katherine Holmes (2015-) PhD candidate in Ecology and Evolutionary Biology

Rodrigo Peres (2014-) PhD candidate in Entomology

Lauren Snyder (2013-) PhD candidate in Ecology and Evolutionary Biology

John Smeda (2012-) PhD candidate in Plant Breeding and Genetics

### **EXTENSION/OUTREACH RESPONSIBILITIES:** (No formal extension responsibilities)

Annual Participant in Cornell Department of Entomology's "Insectapalooza" (2006-2015)

Insect Demonstration at Belle Sherman Elementary School (2011- 2014)

### **REPRESENTATIVE PROFESSIONAL ACTIVITIES**

#### **PROFESSIONAL SOCIETIES**

Entomological Society of America (1994-)

Ecological Society of America (1998-)

International Society of Chemical Ecology (2008-)

### **EDITORIAL BOARDS**

*Oecologia*, (2013-present)  
*Ecological Entomology*, (2010- 2013)  
*Plant Signaling & Behavior*, (2008- 2013)  
*Ecology Letters*, (2006-2010)

## **REPRESENTATIVE PROFESSIONAL CONTRIBUTIONS**

### **INVITED PRESENTATIONS**

2016

Gordon Research Conference. Predator-Prey Interactions. Chemical ecology of tri-trophic interactions.

2014

University of Colorado, Boulder, Colorado. Predicting variation in prey responses to predation risk

Entomology Society of America, Portland, Oregon. P-IE Symposium: “Non-Lethal Effects of Predators in Arthropod Food Webs: Ecological Patterns, Behavioral Mechanisms, and Agricultural Applications”. Using fear effectively in pest management.

2013

Ecological Society of America, Minneapolis. Symposium: “Ecophysiological consequences of predation risk”. Predicting prey responses to predation risk.

Entomological Society of America, Austin, Symposium: “The Environment as the Sculptor” Predicting prey responses to predation risk

7<sup>th</sup> New Phytologist Workshop on Chemical Ecology and Coevolution, Ithaca: Predicting prey responses to predation risk

2012

Plant-Microbe-Interactions Symposium, Baeza, Spain. Ecological importance of jasmonate-salicylate signal crosstalk in plant resistance

AgriCanada Research Center, London, Canada. Ecological importance of jasmonate-salicylate signal crosstalk in plant resistance

University of California, Davis. Ecological consequences of predation risk.

Western University, London, Canada. Interactive effects of host plant quality and predation risk

2011

Stockholm U-Cornell U Insect Science Symposium Compensatory responses to predation risk in *Manduca sexta* Stockholm University.

Cornell University, Caterpillar Day. The Ecology of fear in *Manduca sexta*.

Texas A&M. Interactions between host plant resistance and predation risk.

Bittersweet Nightshade Research Symposium, Key Note Speaker, Berlin Germany. Plant-mediated interactions between insect herbivores, unravelling the mechanisms of field patterns.

2010

Impacts of predation risk and plant quality on caterpillar nutritional ecology and physiology.

International Plant Resistance Symposium, Invited Speaker, Charleston, SC

### **PEER REVIEWED RESEARCH PUBLICATIONS**

- Wetzel, William C. and **J.S. Thaler**. 2016. Does plant trait diversity reduce the ability of herbivores to defend against predators? The plant variability-gut acclimation hypothesis. *Current Opinion in Insect Science* 14:25-31.
- Orrock, J.L., A. Sih, M.C.O Ferrari, R. Karban, E.L. Preisser, M.J. Sheriff, and **J.S. Thaler**. 2015. Error management in plant allocation to herbivore defense. *Trends in Ecology and Evolution* 8:441-445. <http://dx.doi.org/10.1016/j.tree.2015.06.005>
- Kersch-Becker, M and **J.S. Thaler**. 2015. Plant resistance reduces the strength of consumptive and non-consumptive effects of predators on aphids. *Journal of Animal Ecology*, 84:1222-1232. 10.1111/1365-2656.12371 \*\*winner of 2<sup>nd</sup> place Elton Prize (best paper of the year by a young scientist)
- Claflin, S., **J.S. Thaler**, A. Power. 2015. Predators, host abundance, and host spatial distribution affect the movement of wingless non-colonizing vector *Rhopalosiphum padi* (L.) and PVY prevalence in an oat/potato system. *Arthropod-Plant Interactions* 9:301-309. 10.1007/s11829-015-9370-3
- Thaler, J.S.**, E.L. Olsen, I. Kaplan. 2015. Jasmonate-induced plant defenses and prey availability impact the preference and performance of an omnivorous stink bug, *Podisus maculiventris*. *Arthropod-Plant Interactions*, 9:141-148. DOI: 10.1007/s11829-015-9357-0
- Raguso, R.A., Agrawal, A.A., Douglas, A.E., Jander, G., Kessler, A., Poveda, K, and **J.S. Thaler**. 2015. The raison d'être of chemical ecology. *Ecology*, 96:617-630. DOI 10.1007/s00442-014-3069-5
- Hermann, S.L. and **J.S. Thaler**. 2014. Prey Perception of Predation Risk: volatile chemical cues mediate non-consumptive effects of a predator on a herbivorous insect. *Oecologia* 176:669-676. DOI 10.1007/s00442-014-3069-5
- Campbell, S.A., R. Halitschke, **J.S. Thaler**, A. Kessler. 2014. Plant mating systems alter adaptive plasticity in response to herbivory. *The Plant Journal* 78:481-490.
- Kaplan, I., S.H. McArt, **Thaler, J.S.** 2014. Plant defenses and predation risk differentially shape patterns of consumption, growth, and digestive efficiency in a guild of leaf-chewing insects. *Plos One*: 9(4) e93714
- Kersch-Becker, M.F. and **J. S. Thaler**. 2014. Virus strains differentially induce plant susceptibility to aphid vectors and chewing herbivores. *Oecologia* 174:883-892.
- Thaler, J.S.**, H. Contreras, G. Davidowitz. 2013. Effects of predation risk and plant resistance on *Manduca sexta* caterpillar feeding behavior and physiology. *Ecological Entomology* 39:210-216.
- McArt, S.H. and **J.S. Thaler**. 2013. Plant genotypic diversity reduces the rate of consumer resource utilization. *Proceedings of the Royal Society B*. 280: 20130639.
- Goulet, E.J., **J. Thaler**, A. DiTommaso, M. Schwarzlander, E. J. Shields. 2013. Impact of *Mecinus janthinus* (Coleoptera: Curculionidae) on the growth and reproduction of *Linaria dalmatica* (Scrophulariaceae). *The Great Lakes Entomologist* 46:90-98.
- McArt, S.H., R. Halitschke, J-P. Salminen, **J.S. Thaler**. 2013. Leaf herbivory increases plant fitness via induced resistance to seed predators. *Ecology*, 4:966-975.
- Campbell, S.A., **J.S. Thaler**, A. Kessler. 2013. Plant chemistry underlies herbivore-mediated inbreeding depression in nature. *Ecology Letters*, 16:252-260.
- Chautá-Mellizo, A., S.A. Campbell, M.A. Bonilla, **J.S. Thaler**, K. Poveda. 2012. Effects of natural and artificial pollination on fruit and offspring quality. *Basic and Applied Ecology*, 524-532.
- Thaler, J.S.**, S.H. McArt, I. Kaplan. 2012. Compensatory mechanisms for ameliorating the fundamental tradeoff between predator avoidance and foraging. *Proceedings of the*

- National Academy of Science, 109: 12075-12080.
- Thaler, J.S.**, P.T. Humphrey, N.K. Whiteman. 2012. Evolution of jasmonate and salicylate crosstalk. *Trends in Plant Science*, 17:260-270.
- Kaplan, I and **J.S. Thaler**. 2012. Phytohormone-mediated plant resistance and predation risk act independently on the population growth and wing formation of potato aphids, *Macrosiphum euphorbiae*. *Arthropod-Plant interactions*, 6:181-186.
- McArt, S. H., Cook-Patton, S. C. and **Thaler, J. S.** 2012. Relationships between arthropod richness, evenness, and diversity are altered by complementarity among plant genotypes. *Oecologia*, 168:1013-1021.
- Cook-Patton, S. C., McArt, S. H., Parachnowitsch, A. L., **Thaler, J. S.**, and Agrawal, A. A. 2011. A direct comparison of the consequences of plant genotypic and species diversity on communities and ecosystem function. *Ecology*, 92:915-923.
- Kaplan, I and **J.S. Thaler**. 2011. Do plant defenses enhance or diminish prey suppression by omnivorous Heteroptera? *Biological Control*, 59:53-60.
- Rodriguez-Saona, C.R., R.O. Musser, H. Vogel, S.M. Hum-Musser, and **J.S. Thaler**. 2010. Molecular, biochemical, and organismal analyses of tomato plants simultaneously attacked by herbivores from two feeding guilds. *Journal of Chemical Ecology* 36:1043-1057.
- Thaler, J.S.**, A.A. Agrawal, R. Halitschke. 2010. Salicylate-mediated interactions between pathogens and herbivores. *Ecology* 91:1075-1082.
- Kaplan, I. and **J.S. Thaler**. 2010. Plant resistance attenuates the consumptive and non-consumptive impacts of predators on prey. *Oikos* 119:1105-1113.
- Scott, I.M., **J.S. Thaler** and J.G. Scott. 2010. Response of a generalist herbivore *Trichoplusia ni* to jasmonate-mediated induced defense in tomato. *Journal of Chemical Ecology*, 36:490-499.

#### **NON-PEER REVIEWED RESEARCH PUBLICATIONS**

- Sheriff, M.J. and **J.S. Thaler**. 2014 Ecophysiological effects of predation risk; an integration across disciplines. *Oecologia* 2014, 176:607-611.

#### **PROFESSIONAL OVERVIEW AND OBJECTIVES**

Dr. Thaler's research goals are to develop a predictive framework for understanding the complex interactions that occur between plant and insect species. Studies of fundamental ecological processes, in both agricultural and wild systems, can provide insight into controlling insect pests and understanding the natural world. Thaler's research focuses on ecological interactions between plants, herbivores, and carnivores in agricultural and wild Solanaceous plants. Current research projects focus on understanding the non-consumptive effects of predators on prey and understanding how plants integrate their defenses against multiple attackers. She offers courses in Insect Ecology (ENTOM/BIOEE 4550), Chemical Ecology (ENTOM/BIOEE/BIONB 3690) and Ecology & the Environment (BIOEE 1610 which is to a largely freshman audience). She also teaches a graduate seminar in Plant-Insect Interactions. Thaler mentors undergraduate and graduate students in the areas of entomology, ecology, plant sciences and biology.