Joe M Kaser, PhD

Postdoctoral Research Associate
Department of Entomology
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I am broadly interested in insect ecology. In particular, I am interested in understanding the ecological consequences of introduced populations – like invasive species, classical biological control agents, and genetically engineered insects – with the applied goal of manipulating their outcomes for social, economic, and environmental benefits.

EDUCATION

PhD 2016 Entomology (major), and Risk Assessment of Introduced Species & Genotypes (minor), Advisor: George E. Heimpel, University of Minnesota, Twin Cities
Dissertation title: *Risk and efficacy in biological control: an evaluation of the aphid parasitoid* Aphelinus certus *in North America*

MS 2010 Entomology, Advisor: Sujaya Rao, Oregon State University
Thesis title: Epichloë typhina *(fungus)* – Botanophila lobata *(fly) interaction: an invasive "pollinator" mutualism in its introduced range in western Oregon*

BA 2006 Zoology, University of Wisconsin, Madison

CURRENT POSITIONS

Postdoctoral Associate, PI: Dr. Anne Nielsen, Department of Entomology, Rutgers University, *Oct 2016 to present*
Researching the population dynamics and biological control of *Halyomorpha halys* in apples and peaches.

Science Policy Fellow, Entomological Society of America
Sept 2016 to present
This is a two-year program aimed toward advocating at the federal, state, and local levels for issues concerning the field of entomology.

RELEVANT PAST EMPLOYMENT

Graduate Research Assistant, Department of Entomology, University of Minnesota
June 2016 to Sept 2016

Doctoral Dissertation Fellowship, University of Minnesota
Sept 2015 to May 2016

MnDRIVE: Global Food Ventures, Graduate Student Fellow, University of Minnesota
July 2014 to June 2015

Graduate Research Assistant, Department of Entomology, University of Minnesota
Aug 2012 to July 2014

Teaching Assistant, ENT 1005 Insect Biology, Prof. Ann Fallon, Department of Entomology, University of Minnesota
Sept 2013 to Dec 2013

National Science Foundation (NSF) Integrative Graduate Education and Research Trainee (IGERT), University of Minnesota
Aug 2010 to Aug 2012

Faculty Research Assistant, Department of Crop and Soil Science, Oregon State University
Jan 2010 to July 2010

Graduate Research Assistant, Department of Crop and Soil Science, Oregon State University
Sept 2007 to Nov 2009

PUBLICATIONS

Refereed

Kaser JM, Nielsen AL, and Abram PK. Biological control effects of non-reproductive host mortality caused by insect parasitoids. *Ecological Applications*. **Submitted July, 2017**.

Karp DS, Chaplin-Kramer R, Meehan TD, Martin EA … **Kaser JM**, et al. A framework for predicting pest abundance and biological control across an agricultural landscape. **Submitted July, 2017**. *Nature Ecology & Evolution*.

Kaser JM, and Heimpel GE. Impact of the parasitoid *Aphelinus certus* on soybean aphid populations. *BioControl*. **Submitted March, 2017**.

Kaser JM, and Ode PJ. 2016. Hidden risks and benefits of natural enemy-mediated indirect effects. *Current Opinion in Insect Science* 14: 105-11.

Kantar MB*, Tyl CE*, Dorn KM*, Zhang X*, Jungers JM*, **Kaser JM***, Schendel RR*, Eckberg JO*, Runck BC*, Bunzel M, Jordan NR, Stupar RM, Marks MD, Anderson JA, Johnson GA, Sheaffer CC, Schoenfuss TC, Ismail B, Heimpel GE, and Wyse D. 2016. Perennial grain and oilseed crops. *Annual Review of Plant Biology* 67(1).
Note: Authors with * contributed equally.

Kaser JM, and Heimpel GE. 2015. Linking risk and efficacy in biological control host-parasitoid models. *Biological Control* 90: 49-60.

Eckberg JO, Peterson JA, Borsch CP, **Kaser JM**, Johnson GA, Luhman JC, Wyse DL, and Heimpel GE. 2015. Field abundance and performance of hoverflies (Diptera: Syrphidae) on soybean aphid. *Annals of the Entomological Society of America* 108: 26-34.

David AS, **Kaser JM**, Morey AC, Roth AM, and Andow AD. 2013. Release of genetically engineered insects: a framework to identify potential ecological effects. *Ecology and Evolution* 3 (11): 4000-4015.
Note: First 4 authors contributed equally and are listed alphabetically.

Asplen MK, Bruns E, David AS, Denison RF, Epstein B, Kaiser MC, **Kaser JM**, Lacroix C, Mohl EK, Quiram G, Prescott K, Stanton-Geddes J, Vincent JB, Wragg PD, and May G. 2012. Do trade-offs have explanatory power for the evolution of organismal interactions? *Evolution* 66(5): 1297–1307.

Rao S, Alderman SC, **Kaser JM**, and Hoffman GD. 2012. Fertilization of *Epichloë typhina* in cultivated *Dactylis glomerata* by factors besides *Botanophila* flies. In: Young CA, Aiken G, McCulley, R, Strickland, and Schardl CL, (eds). Epichloae, endophytes of cool season grasses: Implications, utilization and biology. pp: 122-126.

In preparation for review

Akotsen-Mensah C, **Kaser JM**, Leskey TC, Nielsen AL. *In prep.* Differences in population response of *Halyomorpha halys* (Hemiptera: Pentatomidae) to pheromone lures in tree fruit. **Target submission July 2017:** *Journal of Economic Entomology*.

Extension Articles & Un-refereed Reports

Kaser JM, Heimpel GE, and Koch RL. 2015. Parasitic wasps attacking Minnesota soybean aphids: summary of a collaborative statewide survey. *Minnesota Crop News*, Blog Post. http://blog-crop-news.extension.umn.edu/2015/07/parasitic-wasps-attacking-minnesota.html#more
Note: 3rd most viewed article of 2015 for Minnesota Crop News.

Kaser JM, Heimpel GE, Kromroy K, Pahs T, and Koch RL. 2014. Parasitoid community attacking Minnesota soybean aphids: 2014 statewide survey. *Report to the Minnesota Department of Agriculture*.

David AS, **Kaser JM**, Morey AC, Roth AM, and Andow DA. 2012. Potential adverse ecological effects and social consequences of releasing genetically engineered mosquitoes to control malaria. *Invited Report to the U.S. National Research Council*.

Rao S, Hoffman GD, **Kaser JM**, and Alderman SC. 2010. Fertilization of the choke pathogen in orchardgrass seed production fields in the Willamette Valley. In Young, W.C., Ed. *Seed Production Research*, Oregon State University Publication 130: 1-14.

Kaser JM, and Rao S. 2010. Mapping the choke pathogen in cultivated orchardgrass fields in the Willamette Valley. In Young, W.C., Ed. *Seed Production Research*, Oregon State University Publication 129: 1-5.

Kaser JM, Hoffman GD, and Rao S. 2010. Bugs, slugs and alien *Epichloë* (choke) in the Willamette Valley. Handout, Oregon State University, Hyslop Farm Field Day, Corvallis, OR.

Kaser JM, Rao S, and Alderman SC. 2009. Seasonal production of infective ascospores of the choke pathogen, *Epichloë typhina*, in orchardgrass in the Willamette Valley. In Young WC, Ed., *Seed Production Research*, Oregon State University Publication 128: 11-15.

Edited Proceedings

Kaser JM, Nielsen AL, Abram PK and Heimpel GE. **Submitted June, 2017**. Inadvertent reconstruction of exotic food webs: biological control harms and benefits. *Proceedings of the 5th International Symposium on Biological Control of Arthropods*. Editors: Mason PG, Gillespie DR, and Vincent C. CABI.

Heimpel GE, Hopper KR, **Kaser JM**, Miksanek J, Bulgarella M, Ramirez I, Boulton R. **Submitted June 2017**. Parasitoid host ranges: comparing studies from the laboratory and field. *Proceedings of the 5th International Symposium on Biological Control of Arthropods*. Editors: Mason PG, Gillespie DR, and Vincent C. CABI.

GRANTS, AWARDS & ADDITIONAL FUNDING

1. Science Policy Fellowship, Entomological Society of America, 2016-18 (2 years. **$1000** travel + ESA membership fees **~$700**).
2. Doctoral Dissertation Fellowship, University of Minnesota, 2015-16 (9 mos. **$23,000** stipend + **$600** for professional development + tuition and health insurance).
3. MnDRIVE: Global Food Ventures Graduate Student Fellowship, 2014-15 (12 mos. **$28,500** stipend + **$2000** for professional development).
4. Chiang Travel Grant, Department of Entomology, University of Minnesota, 2014-15 (**$200**).
5. CFANS Alumni Society Graduate Studies Professional Development Award, University of Minnesota, Fall 2014 (**$500**).

6. Lugger-Radcliffe Graduate Fellowship for Entomology PhD Students, University of Minnesota, 2014 (**$2500**).
7. University of Minnesota, Department of Entomology Block Travel Grant. 2013-14 (**$200**).
8. Frenatae Entomology Graduate Student Association Travel Grant. 2013-14 (**$90.90**).
9. Peterson JA (P.I.), GE Heimpel, KR Hopper, DL Wyse, C Fernholz, GA Johnson, **JM Kaser**, and JO Eckberg. USDA-NIFA North Central Region Sustainable Agriculture Research & Education Grant: "Promoting sustainable biological control of the soybean aphid by examining the effect of biodiversity on releases of the parasitoid wasp *Aphelinus glycinis*." 2013-16 (**$198,606**).
10. NSF IGERT Travel Fund. 2013. (**$1422.67**).
11. NSF IGERT Research Supply Fund. 2013. (**$2480**).
12. NSF IGERT Research Supply Fund. 2013. (**$1411.59**).
13. University of Minnesota. Department of Entomology Block Travel Grant. 2012-13 (**$200**).
14. NSF Integrative Graduate Education and Research Traineeship: University of Minnesota, Risk Analysis of Introduced Species and Genotypes, Sept 2010 to Aug 2012 (2 yr. **$30,000**/yr + **$10,500**/yr. education allowance).

TEACHING

Mentorship

- Undergraduate Research Opportunity Program (UROP), University of Minnesota. Mentee: Symone McClain.
  Fall 2015 to present
  Project: Influence of host sex on reproduction of the parasitoid *Habrobracon hebetor*.
  Outcomes:
  - Accepted research proposal – stipend **$1400** + **$300** for supplies.
  - Designed and completed laboratory experiment, and analyzed results.
  - Research Poster – see Mclain et al. (2016) in Posters & Presentations section below.
  - Final report to UMN UROP program.

- Research Apprenticeship Program (RAP), University of Minnesota. Mentee: Taylor Pitel.
  Fall 2014 to present
  Project: Parasitoid host manipulation.
  Outcomes:
  - Accepted research proposal.
  - Designed and completed laboratory experiment, and analyzed results.
  - Research Poster – see Pitel et al. (2016) in Posters & Presentations section below.
  - Final report to UMN RAP.

Classroom

Macedonian Phytosanitary Regulations for Products of Plant Origin: Eastern Europe and Eurasia Training, USDA Chochran Fellows Program, Lecturer ($200 honorarium)
Sept 2015

Teaching Assistant, ENT 1005 Insect Biology, Prof. Ann Fallon, Department of Entomology, University of Minnesota
Spring 2013

Breakout Session Instructor, Insect Fair, University of Minnesota, Minneapolis, MN
Dec 2014

Guest Lectures: CFANS 3001, University of Minnesota (Pests and Crop Protection); ENT 5341, University of Minnesota (Biological Control of Insects and Weeds); ENT 311, Oregon State University (Introduction to Insect Pest Management).

POSTERS AND PRESENTATIONS

*indicates speaker

Symposium organizer

Invasion biology and biological control: two great fields that go great together. Organizers: **Kaser JM**, and Asplen MK. June 2016. 71st Annual Meeting of the North Central Branch of the Entomological Society of America, Cleveland, OH.

Risky business: Researching regulated organisms prior to release or invasion. Oct 2011. Organizers: **Kaser JM**, Kaiser MC, Morey AC, Mohl EK, and Andow DA. ISG IGERT, University of Minnesota, St. Paul.

Invited

Kaser JM*, Nielsen AL, Abram PK, and Heimpel GE. **Invited/Accepted for Sept 2017**. Inadvertent reconstruction of exotic food webs: biological control harms and benefits. 5th International Symposium on Biological Control of Arthropods, Langkawi, Malaysia.

Kaser JM*. March 2016. Parasitoids, invasive species, and biological control efficacy and risk. Department of Entomology Seminar Series, Rutgers University, New Brunswick, NJ.

Kaser JM*, and Heimpel GE. Sept 2016. Parasitoid host range, establishment success, and biological control efficacy. Symposium presentation. In: "Parasitoid assemblages in agroecosystems: environmental drivers affecting biocontrol." XXV International Congress of Entomology, Orlando, FL.

Kaser JM*, Dregni JS, Nick P, Koch RL, and Heimpel GE. June 2016. Biological control agent ecology: lessons from introduced soybean aphid parasitoids. In: "Invasion biology and biological control: two great fields that go great together." Annual Meeting of the North Central Branch of the Entomological Society of America, Cleveland, OH.

Kaser JM*, and Heimpel GE. June 2016. Evaluating classical biological control benefits and non-target risk: from models to the field. In: "From basic to applied science: Tri-trophic interactions in natural and managed systems." Annual Meeting of the North Central Branch of the Entomological Society of America, Cleveland, OH.

Kaser JM. Personal freedom through academic inquiry in your undergraduate education. Feb 2016. Invited talk at the Farmhouse Fraternity, Academics Night, University of Minnesota, Saint Paul, MN.

Dregni J, Padowski N, **Kaser JM**, Hopper KR, Ciborowski J, Koch RL, and Heimpel GE. Jan 2016. Biological control of the soybean aphid using Asian parasitoids. Poster, Minnesota Ag EXPO, Mankato, MN.

Kaser JM, Dregni J, Padowski N, Hopper KR, Kromroy K, and Heimpel GE. Jan 2015. Biological control of the soybean aphid using Asian parasitoids. Poster, Minnesota Ag EXPO, Mankato, MN.

Kaser JM, Padowski N, Peterson JA, and Heimpel GE. Jan 2014. Soybean aphid research: biological control using parasitoid wasps. Poster, Minnesota Ag EXPO, Mankato, MN.

Kaser JM*, Alderman SC, and Rao S. June 2011. *Epichloë typhina* (fungus) – *Botanophila lobata* (fly) interaction: an invasive "pollinator" mutualism in its introduced range in western Oregon. Choke Disease Workgroup, Oregon State University, Corvallis, OR.

Rao S*, Alderman SC, and **Kaser JM***. Talk, March 2010. Choke disease in Willamette Valley Orchardgrass. Orchardgrass Seed Growers Meeting, Albany, Oregon.

Rao S*, Ackerman K, **Kaser JM***, and Alderman SC*. Talk, March 2009. Choke in orchardgrass: research update. Talk, Orchardgrass Commission and Western Farm Service Meeting, Oregon.

Alderman SC*, Hoffman GD*, and **Kaser JM***. Talk, Update on choke disease in Oregon. Nov 2008. Choke Taskforce Meeting, Tangent, Oregon.

Contributed

Kaser JM*, Hamilton GC, Nielsen AL. **Accepted for Nov 2017**. Pentatomid diversity in mid-Atlantic blacklight traps post-*Halyomorpha halys* invasion. Ten-minute talk, Annual Meeting, Entomological Society of America, Denver, CO.

Heimpel GE, Hopper KR, **Kaser JM**, Miksanek J, Bulgarella M, Ramirez I, Boulton R. **Invited/Accepted for Sept 2017**. Parasitoid host ranges: comparing studies from the laboratory and field. 5th International Symposium on Biological Control of Arthropods, Langkawi, Malaysia.

Kaser JM*, Abram PK, and Nielsen AL. March 2017. Parasitoid-induced host egg termination and enemy-mediated indirect effects. Ten-minute talk. Entomological Society of America, Eastern Branch Meeting, Newport, RI.

Kaser JM*. March 2017. Parasitoids, invasive species, and biological control efficacy and risk. Department of Entomology Seminar Series, Rutgers University, New Brunswick, NJ.

Nielsen AL*, **Kaser JM**, and Akosten-Mensah C. Dec 2016. Differences in population response of Halyomorpha halys to pheromone traps in apple and peach. 92nd Cumberland-Shenandoah Fruit Workers Conference, Winchester, VA.

Plećaš M*, Peterson JA, **Kaser JM**, Eckberg JO, Johnson GA, and Heimpel GE. Sept 2016. Effects of biofuel plantings on natural enemies and biological control of soybean aphid. Twenty-minute talk. International Symposium, Ecology of Aphidophaga 13. Freising, Germany.

McClain S*, **Kaser JM**, and Heimpel GE. April 2016. Host sex and offspring decision-making in the parasitoid *Habrobracon hebetor*. Poster, Undergraduate Research Symposium, University of Minnesota, Saint Paul, MN.

Pitel TA*, **Kaser JM**, and Heimpel GE. April 2016. Host manipulation of the soybean aphid by the parasitoid *Aphelinus certus*. Poster, Undergraduate Research Symposium, University of Minnesota, Saint Paul, MN.

Kaser JM*, and Heimpel GE. Nov 2015. Host phylogeny and parasitism by *Aphelinus certus*. Ten-minute talk, Annual Meeting, Entomological Society of America, Minneapolis, MN.

Kaser JM*, and Heimpel GE. May 2015. Linking risk and efficacy in biological control host-parasitoid models. Presentation, Benefits and Risk of Exotic Biological Control Agents, International Organisation for Biological Control, West Palearctic Regional Section, Working Group Meeting. Bornholm, Denmark.

Eckberg JO, Johnson GA, Heimpel GE, Sheaffer C, Peterson JA, Plećaš M, **Kaser JM**, and Wyse DL. Jan 2015. Integrative cropping systems to enhance biological control and increase

soybean yield. Poster, University of Minnesota, Monsanto Fellows Symposium. Saint Paul, MN.

Kaser JM*, and Heimpel GE. Nov 2014. Host range, apparent competition, and biological control of the soybean aphid. Ten-minute talk, Annual Meeting, Entomological Society of America, Portland, OR.

Plećaš M*, Eckberg JO, **Kaser JM**, Lane I, Johnson GA, and Heimpel GE. Nov 2014. Effects of bioenergy crops in soybean fields on abundance and diversity of pollinators. Ten-minute talk, Annual Meeting, Entomological Society of America, Portland, OR.

Tran AK*, Stephens AR, Lagos DR, Peterson JA, **Kaser JM**, and Heimpel GE. March 2014. Molecular detection of hitch-hiking parasitoids in migratory aphids from the Midwest suction trap network. Poster, Annual Meeting, North Central Branch Entomological Society of America, Des Moines, IA.

Kaser JM*, Dregni J, Padowski N, and Heimpel GE. Jan 2014. Biological control of soybean aphid using Asian parasitoids. Presentation, Minnesota Soybean Research and Promotion Council, Saint Paul, MN.

Kaser JM*, and Heimpel GE. Nov 2013. Interactions of a "risky" biological control agent with target and non-target aphids. Ten-minute talk, Annual Meeting, Entomological Society of America, Austin, TX.

Peterson JA*, Eckberg JO, Blaedow KE, **Kaser JM**, Johnson GA, and Heimpel GE. Nov 2013. Biological control and resource utilization by natural enemies in integrated perennial bioenergy plantings. Symposium - Biofuel cropping systems: connecting beneficial arthropods, ecosystem services, and landscape effects. Presentation, Annual Meeting, Entomological Society of America, Austin, TX.

Kaser JM*, and Heimpel GE. Sept 2013. Risk and efficacy in biological control: the introduction of *Aphelinus certus* (Hymenoptera: Aphelinidae) in North America. Presentation, 12th International Symposium "Ecology of Aphidophaga", Belgrade, Serbia.

Peterson JA*, Eckberg JO, **Kaser JM**, Blaedow KE, Johnson GA, and Heimpel GE. Aug 2013. Perennial bioenergy plantings enhance an ecosystem service and provide resources for beneficial insects in agricultural fields. Presentation, Annual Meeting, Ecological Society of America, Minneapolis, MN.

Kaser JM*, and Heimpel GE. June 2013. Linking risk and efficacy in biological control host-parasitoid models. Presentation, 3rd International Entomophagous Insects Conference, Magog, Quebec, Canada.

Kaser JM*, and Heimpel GE. Nov 2012. *Aphelinus certus*: Minnesota's latest invasive species or biocontrol agent? Ten-minute talk, Annual meeting, Entomological Society of America, Knoxville, TN.

Peterson JA*, Eckberg JO, **Kaser JM**, Johnson GA, and Heimpel GE. Nov 2012. Diversified bioenergy plantings to enhance ecosystems services: Biological control of soybean aphid. Ten-minute talk, Annual meeting, Entomological Society of America, Knoxville, TN.

Eckberg JO*, Johnson GA, Peterson JA, **Kaser JM**, Heimpel GE, Sheaffer CC, and Wyse DL. July 2012. Integrative perennial cropping systems to improve biological control of the soybean aphid. Prentation, Organic Field Day, Lamberton Research and Outreach Center, Lamberton, MN.

Andow DA*, Smith D*, Nelson M*, Lodge A*, and **Kaser JM***. Feb 2012. Presentation, IGERT International cooperative graduate projects on invasive species and genotypes International Research Conference at UMN, Minneapolis, MN.

Kaser JM*, and Rao S. Dec 2010. Water splash in lieu of fly "pollination" of an invasive plant pathogen in western Oregon. Poster, Annual Meeting, Entomological Society of America, San Diego, CA.

Kaser JM*, and Rao S. Dec 2009. Fly-fungus and fungus-grass symbioses: spatial variability and interaction of three non-native species in western Oregon. Poster, Annual Meeting, Entomological Society of America, Indianapolis, IN.

Kaser JM*, Alderman SC, and Rao S. March 2009. Ascospore production and fly mediated fertilization of the choke disease pathogen. Presentation, Choke Research, Annual Meeting, Oregon Orchardgrass Growers, March 2009.

Kaser JM*, Alderman SC, and Rao S. Nov 2008. Symbiosis in a non-native context: *Epichloë typhina – Dactylis glomerata – Botanophila lobata* interaction in the Willamette Valley, Oregon. Ten-minute talk, Annual Meeting, Entomological Society of America, Reno, NV.

SERVICE (2010 to present)

Reviewer: 1) *Ann. Entomol. Soc. Am.*; 2) *Biocontrol*; 3) *CABI*; 4) *Ecol. Model.*; 5) *Entomol. Exp. Appl.*; 6) *Entomol. Gen.*; 7) *J. Econ. Entomol.*; 8) *J. Pest Sci.*; 9) *Pest Manag. Sci.* 10) *PLoS ONE*

Judge, Student Poster Competition, Entomological Society of America, North Central Branch Meeting, 2016, Cleveland, OH.

Curriculum Committee, Interim Student Representative, University of Minnesota
Feb 2016 to June 2016

President, Frenatae: Entomology Student Association, 501(c)(3), University of Minnesota
May 2013 to May 2014

Treasurer, Frenatae: Entomology Student Association, University of Minnesota,
Sept 2012 to May 2013

Executive Committee Student Representative, NSF Risk Analysis of Introduced Species and Genotypes IGERT Program, University of Minnesota,
Sept 2010 to Sept 2012