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Education

Doctorate of Philosophy, 2008

Brock University, St. Catharines, Ontario, Canada

Major: Biological Sciences, Ecology and Evolution

Distinguished Graduate Student Award – PhD in Biological Sciences

Bachelor of Arts, 2000

Clark University, Worcester, MA

Major: Biology (Ecology & Evolution), Minor: Geography

Professional Experience

Assistant Specialist

Department of Entomology, University of California, Riverside

Riverside, California, March 2012-Present

Postdoctoral Research Fellow

Texas A&M AgriLife Research

Lubbock, Texas, 2010-2012

Postdoctoral Researcher (Research Affiliate)

USDA-ARS-Beneficial Insects Introduction Research Laboratory/University of Delaware

Newark, Delaware, 2009- 2010

Faculty Research Assistant

University of Maryland Department of Biology

College Park, Maryland. 2001-2002

Research Assistant

Brown University Department of Evolution, Ecology and Behavior

Providence, Rhode Island. 2000-2001

Publications

Marcus Pennington, Nicholas Rivas, **Sean M. Prager**, William E. Walton, John T. Trumble.

Pharmaceutical and personal care products influence the biology and microbiome of a medically important mosquito species *Culex quinquefasciatus*. Submitted to PNAS

S.M. Prager, C. Wallis, J.T. Trumble, Indirect effects of one plant pathogen on the transmission of a second mediated by vector behavior. In Review. Functional Ecology

Aneela Younas, Muhammad Shaaban, Waqas Wakil, **Sean M Prager**. The efficacy of *Beauveria bassiana*, jasmonic acid and chlorantraniliprole on larval population of *Helicoverpa armigera* in chickpea crop ecosystem. Submitted to Pest Management Science

Oswaldo A. Rubio-Covarrubias, M.A. Cadena-Hinojosa, R. Flores-López, J.E. Munyaneza, **S.M. Prager**, and J. Trumble. Assessing zebra chip resistance of advanced potato breeding lines under field conditions in the Toluca Valley, Mexico. Submitted to American Journal of Potato Research.

Sean M. Prager, (2014). An examination of a socially polymorphic carpenter bee reveals no advantage to social nesting. Biological Journal of the Linnean Society. 113: 998-1010

Sean M. Prager, Xavier Martini, Hasitha Guvvala, Christian Nansen, Jonathan Lundgren. (2014). An obligate spider mite predator prefers prey without *Bt* toxins. Annals of Applied Biology. 165(1): 108-116

Sean M. Prager, Casey D. Butler, John T. Trumble. (2014) A binomial sequential sampling plan for the psyllid *Bactericera cockerelli* (Šulc) (Hemiptera: Triozidae) in tomato (*Solanum lycopersicum*), with notes on cross crop distributions. Journal of Economic Entomology. 107(2): 838-845

Sean M. Prager, Owen Milo Lewis, Jerry Michels, Christian Nansen. (2014). The influence of maturity and variety of potato plants on oviposition and probing of *Bactericera cockerelli* (Šulc) (Hemiptera: Triozidae). Environmental Entomology. 43(2): 402-409

Sean M. Prager, Isaac Esquivel, John T. Trumble, (2014) Factors influencing host plant choice and larval performance in *Bactericera cockerelli*. PLOS ONE. 10(137): e94047

Keith R. Hopper, **Sean M. Prager**, George E. Heimpel. (2013) Is parasitoid host specificity dynamic? Functional Ecology 27(5): 1201-1211

Sean M. Prager, Beatriz Vindiola, Gregory S. Kund, Frank J. Byrne, John T. Trumble. (2013) Considerations for the use of neonicotinoid pesticides in management of *Bactericera cockerelli* (Šulc) (Hemiptera: Triozidae). Crop Protection 54: 84-91

Sean M. Prager, Owen Milo Lewis, Christian Nansen. (2013) Oviposition and leaf probing by *Bactericera cockerelli* (Homoptera: Psyllidae) in response to a limestone particle film or a plant growth regulator applied to potato plants. Crop Protection 45: 57-62

Sean M. Prager, Casey D. Butler, John T. Trumble. (2013) A sequential binomial sampling plan for potato psyllid (Hemiptera: Triozidae) on bell pepper (*Capsicum annum*). Pest Management Science. 69(10): 1131-1135

Xavier Martini, Shawn Seibert, **Sean M. Prager**, Christian Nansen. (2012) Description and applications of a simple method to sample soft-bodied insect immatures. *Entomologia Experimentalis et Applicata*. 143(2): 103-110

Sean Prager and Jean Richardson. (2012) An ecological analysis of mating biology of *Xylocopa virginica* in southern Ontario. *Ecological Entomology*, 37(4): 283-292

Sean Prager and Fiona Hunter. (2011) Relationships between nest architecture and behavior in *Xylocopa* (Xylocopoides) *virginica*. *Journal of Insect Behavior*. 24 (4): 293-306

Dimitri A. Skandalis, Glenn J. Tattersall, **Sean Prager**, Miriam H. Richards. (2009) Body Size and Shape of the Large Carpenter Bee, *Xylocopa virginica* (L.) (Hymenoptera: Apidae). *Journal of the Kansas Entomological Society*. 82(1), 30-42.

Mark Frampton, Sam Droege, Travis Conrad, **Sean Prager** and Miriam H. Richards. (2008). Evaluation of specimen preservatives for DNA analyses of bees (Hymenoptera: Apoidea). *Journal of Hymenoptera Research*. 17(2), 195-200

Manuscripts in preparation

S.M. Prager and J.T. Trumble. Ovarian dynamics of *Bactericera cockerelli*.

S.M. Prager and J.T. Trumble. Broad spectrum insecticides and management

Book Chapters

S.M. Prager and J.T. Trumble. Impact and management of tomato psyllids on tomatoes. In: *Sustainable Management of Arthropod Pests of Tomato*. Eds. W. Wakil and G. Brust. In preparation.

Published Abstracts and Proceedings

R.G. Novy, **S.M. Prager**, J.C. Miller Jr., B. Vindeola, J.T. Trumble, characterization of potato breeding clones to determine mechanisms conferring observed resistance/tolerance to zebra chip disease. Proceedings of the 13th Annual 2012 Zebra Chip Reporting Session.

S.M. Prager, I. Esquivel, J.T. Trumble, Patterns of host plant use in *Bactericera cockerelli*. Proceedings of the 12th Annual 2012 Zebra Chip Reporting Session.

S.M. Prager, B. Vindiola, G.S. Kund, F.J. Byrne, J.T. Trumble. An update on resistance and the use of neonicotinoids to manage zebra chip and potato psyllids. Proceedings of the 12th Annual 2012 Zebra Chip Reporting Session.

S.M. Prager, Casey Butler, J.T. Trumble. Area wide sampling for potato psyllids: comparisons of distributions and scouting strategies on potatoes, tomatoes and peppers. Proceedings of the 12th Annual 2012 Zebra Chip Reporting Session.

J.T. Trumble, **S.M. Prager**, G. Kund. Insect resistance and other factors affecting neonicotinoids in potatoes. Proceedings of the 12th Annual 2012 Zebra Chip Reporting Session.

S.M. Prager, K. Vaughn, N. Henderson, X. Martini, M. Lewis, and C. Nansen. behavioral responses by potato psyllids to agro-chemicals. Proceedings of the 11th Annual 2011 Zebra Chip Reporting Session.

C. Nansen, **S.M. Prager**, B. Qi, X. Martini, O.M. Lewis, and K. Vaughn. Using Hyperspectral Imaging in ZC research. Proceedings of the 11th Annual 2011 Zebra Chip Reporting Session.

S.Seibert, **S.M. Prager**, et al. Sampling of potato psyllids. Proceedings of the 11th Annual 2011 Zebra Chip Reporting Session.

S. Prager. 2006. Workers that don't work in *Xylocopa virginica*. Invited Symposia: The myth of the sterile worker: A reconsideration of worker reproductive options in social Hymenoptera without morphological castes. 2006 IUSSI Congress, Washington, DC. August 2006.

S.M. Prager. 2004. Behaviour of female *Xylocopa virginica* in southern Ontario. Toronto Entomology Association Annual Meeting and Newsletter. Toronto, Ontario.

S.M. Prager. 2002. Social behaviour in the large carpenter bees *Xylocopa*. Toronto Entomology Association Spring Newsletter.

J. Dennehy, C. Vitek, **S. Prager** and T. Livdahl. 2000. Bet hedging and habitat uncertainty: variation in hatch timing is associated with annual precipitation in a tree hole mosquito, *Aedes triseriatus*. Ecological Society of America Annual Meeting, Snowbird, Utah, August 2000.

C.J. Vitek, J. Dennehy, **S. Prager** and T.P. Livdahl. 2000. Variable timing of egg hatch and its relation to annual precipitation in populations of *Aedes triseriatus*. XXI International Congress of Entomology, Foz do Iguaçu, Brazil, August, 2000.

Invited Seminars

Sean M. Prager and John T. Trumble. 2013. Status of vegetable pests in Southern California and management of psyllids on solanaceous vegetable crops. 2013 Entomological Society of American Annual Meeting.

Sean M. Prager and John T. Trumble. 2013. Insect repellents, pesticide resistance, and breeding for resistance to potato psyllid to manage Zebra Chip disease. 2013 American Phytopathological Society Caribbean and Pacific Divisions Joint Meeting.

Sean M. Prager. 2013. Choice and Preference in Arthropods. University of California, Riverside, Department of Entomology

Sean Prager. 2010. Social behaviors in a northern population of large carpenter bees. University of Delaware, Department of Entomology and Wildlife Ecology. March 2010.

Sean Prager and M. Richards. 2004. Social behaviour in an allegedly solitary bee. International Union for the Study of Social Insects-North American Section, Camp Tontozona, Arizona.

Sean Prager. 2006. Workers that don't work in *Xylocopa virginica*. Symposia: The myth of the sterile worker: A reconsideration of worker reproductive options in social Hymenoptera without morphological castes. 2006 IUSSI Congress, Washington, DC. August 2006.

Sean Prager. 2002. Social behaviour in the large carpenter bees *Xylocopa*. Toronto Entomology Association Spring Meeting. Toronto Ontario.

Presentations

A. Zeilinger, **S. Prager**, J. Trumble, M. Daugherty. Ecology and Management of tomato psyllids: A research update. 2013 Ventura County Cooperative Extension Meeting.

S.M. Prager, I. Esquivel, J.T. Trumble. Patterns of host plant use in *Bactericera cockerelli*. 2013 SCRI Zebra Chip Reporting Session

S.M. Prager, B. Vindiola, G.S. Kund, F.J. Byrne, J.T. Trumble. An update on resistance and the use of neonicotinoids to manage zebra chip and potato psyllids. 2013 Zebra Chip Reporting Session

B. Vindiola, G. Kund, **S.M. Prager**, J.T. Trumble. Investigations of Potato Psyllid Repellents. 2013 Entomological Society of America, Pacific Branch Meeting

S.M. Prager, C. Butler, J.T. Trumble. Area wide sampling for potato psyllids: comparisons of distributions and scouting strategies on potatoes, tomatoes and peppers. 2012 SCRI Zebra Chip Reporting Session

J.T. Trumble, **S.M. Prager**, G. Kund. Insect resistance and other factors affecting neonicotinoids in potatoes. 2012 SCRI Zebra Chip Reporting Session

S.M. Prager, G. Kund, J.T. Trumble. Investigations of Potato Psyllid Repellents. 2012 SCRI Zebra Chip Reporting Session

K.R. Hopper, **S.M. Prager**, G.E. Heimpel. Is parasitoid range dynamic? 2012 Entomological Society of America Annual Meeting. Knoxville, TN.

S.M. Prager, C.D. Butler, J.T. Trumble. A sequential binomial sampling plan for potato psyllid (Hemiptera: Trioziidae) on bell pepper (*Capsicum annum*). 2012 Entomological Society of America Annual Meeting. Knoxville, TN.

S.M. Prager, X. Martini, J.G. Lundgren, C. Nansen. Spider mite (*Tetranychus cinnabarinus*) infestations reduce Bt toxin concentration in corn leaves and predators avoid spider mites that have fed on Bt corn. 2012 Entomological Society of America Annual Meeting. Knoxville, TN.

S.M. Prager. The influence of various agrochemicals on the oviposition and feeding behavior of potato psyllids (*Bactericera cockerelli*). 2011 ESA Annual Meeting. Reno, NV

S.M. Prager. Inter- and intra-plant distribution of potato psyllids (*Bactericera cockerelli*) in commercial fields. 2011 ESA Annual Meeting, Reno, NV

S. Prager, Social behaviors in a northern population of large carpenter bees. University of Delaware Department of Entomology and Wildlife Ecology. March 2010.

Skandalis DA, MH Richards, GJ Tattersall, **S Prager**. Local and latitudinal variation in morphometry of *Xylocopa virginica*. Poster, Entomological Society of Ontario Meeting, Guelph ON. October 2006.

Skandalis DA, **S Prager**, GJ Tattersall, JC Shaw, MH Richards. Prospective range expansion due to global warming in the large carpenter bee, *Xylocopa virginica virginica*. Poster, OEEC Meeting, St. Catharines ON. May 2006.

Skandalis DA, **S Prager**, GJ Tattersall. Overwintering strategies of *Xylocopa virginica*. Poster, OEEC Meeting, Ottawa ON. May 2005.

S. Prager and M.H. Richards. Social behaviour of *Xylocopa virginica* in southern Ontario. Proceedings of the Ontario Ecology and Ethology Colloquium, Toronto, Ontario.

S. Prager, A. Rutgers-Kelly, M.H. Richards. 2005. Unusual Phenology in an Allegedly Solitary bee *Dialictus admirandum*. Ontario Ecology and Ethology Colloquium, Ottawa, Ontario.

S. Prager and M. Richards. 2004. Social behaviour in an allegedly solitary bee. International Union for the Study of Social Insects-North American Section, Camp Tontozona, Arizona.

J. Wilkinson et al. 2003. Maintenance of sex chromosome meiotic drive in stalk-eyed flies. Society for the Study of Evolution, Annual Meeting, Chino, California.

S. Prager. 2002. Social and Nesting behaviour in the large carpenter bees *Xylocopa*. Ontario Ecology and Ethology Colloquium, Hamilton, Ontario.

S. Prager and M. H. Richards. 2002. Sociobiology and *Xenox* (Anthrax) parasitism in the large carpenter bee *Xylocopa virginica*. Ontario Entomological Society Annual Meeting, Ottawa Ontario.

Funding

Current:

S.M. Prager and J.T. Trumble. 2013 SCRI Matching Funds Grant, “Resistance to pesticides commonly used for management of potato psyllids”.

S.M. Prager and J.T. Trumble. 2014 SCRI Matching Funds Grant, “Baselines for evaluation of resistance to common insecticides used for management of potato psyllids”.

R. Novy, C. Miller Jr., **S.M. Prager**, J.T. Trumble. 2014 SCRI Matching Funds Grant, “Characterization of potato breeding clones to determine mechanisms conferring observed resistance/tolerance to zebra chip disease”.

J.T. Trumble and **S.M. Prager**, 2014 SCRI Matching Funds Grant, “Insecticide rotation programs for the control of potato psyllid and zebra chip”.

Pending:

S.M. Prager and J.T. Trumble. 2014. California Department of Pesticide Regulation. Development and economic analysis of an Integrated Pest Management plan for early season pests of bell pepper. Submitted.

Charles Brown, **Sean M. Prager**, Rodney Cooper, John T. Trumble. Introduction of genes for non-host status of Psyllid from *Solanum bulbocastanum* to cultivated potato. USDA-Agricultural Research Service, Potato Breeding Program. Submitted.

R. Novy, C. Miller Jr., **S.M. Prager**, J.T. Trumble. 2014 SCRI Matching Funds Grant, “Characterization of potato breeding clones to determine mechanisms conferring observed resistance/tolerance to zebra chip disease”. Renewal, Submitted.

Instructional Experience

At Brock University (as demonstrator or teaching assistant):

Biology 2q04-“Principles of Community and Environmental Biology”
Biology 2p05-“Principles of Population and Behavioral Ecology”
Biology 2F01-“Principles of Molecular and Cellular Biology”
Biology 3p60-“Animal Behavior”
Biology/Geography/Earth Science 3p85-“Ecology of a Changing Planet”
Biology 3p97-“Molecular Ecology”

At Brock University (as guest/substitute lecturer):

Biology 3p60-“Animal Behavior”
Biology 2p05-“Behavioral and Population Ecology”
Biology 3p96-“Biometry”

At Texas Tech University: Guest lecturer for Introductory Entomology

Process Oriented Guided Inquiry Learning (POGIL) trained, with emphasis on entomology

Professional Society Memberships

Society for Integrative and Comparative Biology, Entomological Society of America, Ecological Society of America, Animal Behavior Society, American Phytopathological Society

Reviewer/Referee

Evolutionary Ecology, Journal of Insect Behavior, Economic Entomology, Environmental Entomology, Biological Journal of the Linnean Society, Scientia Agricola, Systematic and Applied Acarology, Pest Science, Insect Science, Insect Behavior, Scientific Reports, Annals of the Entomological Society of America, PLoS One, New Zealand Journal of Crop and Horticultural Science, American Journal of Potato Research

Service and Volunteer Work

At UC Riverside: Seminars and Special Lectures Committee, Outreach Committee

At Brock University: Department of Biological Sciences Graduate Committee, Department of Biological Sciences Departmental Representative, Graduate Representative Graduate Admissions Committee, Graduate Students Association Departmental Representative, Students for Students Tutor

Other:

Planning Committee, 2004, Annual Meeting Ontario Entomological Society

Chair Planning Committee, 2006 Ontario Ethology and Ecology Congress

Judge Entomological Society of America National Meeting Student Competition

References

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Jean M. L. Richardson, Ph.D.
Formerly: Assistant Professor, Brock University, Department of Biological Sciences
Currently: Freelance Scientific Writing and Statistical Consultant
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Fiona Hunter, Ph.D.
Brock University, Department of Biological Sciences
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Christian Nansen, Ph.D.
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