

Jessica A. Hartshorn

Assistant Professor of Forest Health, Forestry and Environmental Conservation Department
Lehotsky Hall 264, Clemson University, Clemson, SC 29631
937-654-6719 (cell), 864-656-4861 (office)

I. Educational Background

Ph.D. Entomology, University of Arkansas – Fayetteville, May 2016

Dissertation: Emergence phenology and nematode associates of the woodwasp *Sirex nigricornis* F. (Hymenoptera: Siricidae), in Arkansas and Mississippi forests. Dissertation director: Fred M. Stephen

M.S. Entomology, University of Arkansas – Fayetteville, December 2012

Thesis: Effects of felled shortleaf pine (*Pinus echinata* Mill.) moisture loss on oviposition preferences and survival of *Sirex nigricornis* F. (Hymenoptera: Siricidae). Thesis director: Fred M. Stephen

B.S. Zoology *cum laude*, minor Chemistry, Southern Illinois University – Carbondale, May 2010

II. Relevant Employment

2018 – Present	Assistant Professor of Forest Health, Clemson University, Clemson, SC
2016 – 2018	Forest Health Specialist, Minnesota DNR, Grand Rapids, MN
2017	Faculty, Temporary Part-Time, Itasca Community College, Grand Rapids, MN
2010 – 2016	Research Assistant, Department of Entomology, University of Arkansas, Fayetteville, AR

III. Teaching

Integrated Forest Pest Management (Clemson University)

Forest Protection (Itasca Community College)

Insects, Science, and Society (University of Arkansas)

Morphology of Insects (University of Arkansas)

Insect Ecology (University of Arkansas)

IV. Funding (*indicates in-kind support and significant contributions to grant development)

*Legislative-Citizen Commission on Minnesota Resources, *Maximizing wildlife, water, and productivity in peatlands*, \$697,278 (P.I. Marcella Windmuller-Campione, Alexis Grinde, and Rob Slesak), 2017

USDA Forest Service, State & Private Forestry, Special Technology Development Program, *Eastern larch beetle management in the Great Lakes*, \$202,600 (Co-P.I. with Brian Aukema, Marcella Windmuller-Campione), 2017, not funded.

*Minnesota Invasive Terrestrial Plants and Pest Center, *Dwarf mistletoe detection and management in Minnesota*, \$455,606 (P.I. Marcella Windmuller-Campione, Matthew Russell, and Charles Blinn), 2017 (submitted)

*USDA Forest Service Forest Health Protection, *Cooperative Forest Health Protection and Forest Health Monitoring Core Funding*, \$339,090 (Forest Health Program Coordinator Val Cervenka), 2016

USDA Forest Service - *Sirex nigricornis*, nematodes and subcortical interactions in pines of the southeastern U.S., \$40,000 (Co-P.I. with Fred M. Stephen, Larry D. Galligan), 2015

USDA Forest Service – *Genetic diversity of nematodes parasitizing woodwasps in the southeastern U.S.*, \$15,000 (Co-P.I. with Fred M. Stephen), 2015

University of Arkansas Graduate Student Travel Grant, 4 @ \$1,000, 2012 – 2015

University of Arkansas International Travel Grant, 2 @ \$1,000, 2011 – 2012

V. Refereed publications

Fisher, D.M., **J.A. Hartshorn**, D.C. Steinkraus, L.D. Galligan, and F.M. Stephen. 2017. Variation in sterilization by *Deladenus proximus* on the native woodwasp, *Sirex nigricornis*, in Arkansas. *Journal of the Kansas Entomological Society*. 90(2): 85-93.

Hartshorn, J.A., J.R. Fisher, J.J. Riggins, and F.M. Stephen. 2017. Molecular identification of the roundworm, *Deladenus proximus* (Tylenchida: Neotylenchidae): a parasite of *Sirex nigricornis* (Hymenoptera: Siricidae). *Nematology* 19(1): 15-20.

Hartshorn, J.A., L.D. Galligan, A.J.W. Lynn-Miller, and F.M. Stephen. 2016. *Sirex nigricornis* rearing methods in relation to host age and a novel live-trapping system for wood-borers. *Great Lakes Entomologist* 49(3-4): 173-183.

Hartshorn, J.A., K.D. Chase, L.D. Galligan, J.J. Riggins, and F.M. Stephen. 2016. Interactions among latitude, nematode parasitization, and female *Sirex nigricornis* F. (Hymenoptera: Siricidae) fitness. *Environmental Entomology* 45(6): 1515-1520.

Hartshorn, J.A., L.J. Haavik, J.D. Allison, J.R. Meeker, W. Johnson, L.D. Galligan, K.D. Chase, J.J. Riggins and F.M. Stephen. Decrease in average minimum temperature initiates emergence of adult female *Sirex nigricornis* F. (Hymenoptera: Siricidae). *Agricultural and Forest Entomology* 18(3): 206-213.

Hartshorn, J.A., D.M. Fisher, L.D. Galligan, and F.M. Stephen. 2015. Seasonal phenology of *Sirex nigricornis* F. (Hymenoptera: Siricidae) in Arkansas with implications for management of *S. noctilio*. *Florida Entomologist* 98(3): 933-938.

Hartshorn, J.A. 2015. ESA Student Debates: A connected world poses several threats to biodiversity. What tool currently available is best suited to preserve our current biodiversity? An unbiased introduction. *American Entomologist*. 61(3): 151-152.

Skvarla, M.J., **J.A. Hartshorn**, and A.P.G. Dowling. 2014. Report on a large collection of *Merope tuber* Newman, 1838, (Mecoptera: Meropidae), from Arkansas, with notes on collection technique, sex ratio, and male clasper size. *Psyche: A Journal of Entomology* 2014: 1-6.

Hartshorn, J.A., L.R. Orellana, R.P. Rastok, and S.M. Barrow. 2014. ESA Student Debates: How to solve global climate change: entomophagy. *American Entomologist* 60: 215-216.

Petty, B.M., A.D. Tripodi, A.J.W. Lynn-Miller, **J. A. Hartshorn**, and K.P. Durden. 2014. ESA Student Debates: Organic agriculture will solve projected food and water limitations of the American society. *American Entomologist* 59: 220.

VI. Refereed publications in review

Hartshorn, J.A. *Sirex* woodwasp profile, *In Handbook of Wood Boring Insects of Ornamental Trees and Shrubs in the Eastern U.S.* Ed. J.C. Chong. Entomological Society of America, Annapolis, MD.

Hartshorn, J.A. Management of wood wasps, *In Handbook of Wood Boring Insects of Ornamental Trees and Shrubs in the Eastern U.S.* Ed. J.C. Chong. Entomological Society of America, Annapolis, MD.

VII. Refereed publications in prep

Clarke, S. and **J.A. Hartshorn**. Seasonal variation in population dynamics of southern pine beetles and their associates. *For submission to Environmental Entomology*.

VIII. Proceedings abstracts

Hartshorn, J.A., L.D. Galligan, A.J.W. Lynn-Miller, and F.M. Stephen. *Sirex nigricornis* F. (Hymenoptera: Siricidae) oviposition and development relating to bolt age and a novel system for live-trapping wood borers. Southern Forest Insect Work Conference. Melbourne, FL. July 2017.

Hartshorn, J.A. Women in forest entomology. North American Forest Insect Work Conference. Washington, D.C. May 2016.

Hartshorn, J.A., L.D. Galligan, and F.M. Stephen. Sterilization of *Sirex nigricornis* F. (Hymenoptera: Siricidae) by a native nematode, *Deladenus* sp. (Nematoda: Neotylenchidae). Proceedings of the 26th USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2015.

Hartshorn, J.A., L.D. Galligan, D.J. Dalzotto, and F.M. Stephen. Creation and validation of a degree-day model for *Sirex nigricornis* F. (Hymenoptera: Siricidae) in Arkansas. Proceedings of the 25th USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2014.

Hartshorn, J.A. and F.M. Stephen. Effects of log moisture content on oviposition behavior of *Sirex nigricornis* F. (Hymenoptera: Siricidae). Proceedings of the 24th USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2013.

Hartshorn, J.A. and F.M. Stephen. Effects of log moisture content on oviposition behavior of *Sirex nigricornis* F. (Hymenoptera: Siricidae). Proceedings of the 23rd USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2012.

Hartshorn, J.A., A.J.W. Lynn-Miller, L.D. Galligan, and F.M. Stephen. Biology and oviposition patterns of Arkansas *Sirex*. Proceedings of the North American Forest Insect Work Conference. Portland, OR. May 2011.

Lynn-Miller, A.J.W., L.D. Galligan, **J.A. Hartshorn**, and F.M. Stephen. *Sirex nigricornis* oviposition: Response to bark thickness. Proceedings of the North American Forest Insect Work Conference. Portland, OR. May 2011.

Stephen F.M., L.D. Galligan, **J.A. Hartshorn**, D.M. Keeler, A.J.W. Lynn-Miller, and D.C. Steinkraus.
Arkansas *Sirex*: biology, phenology and natural enemies. Proceedings of the 22nd USDA Interagency
Forum on Invasive Species. Annapolis, MD. January 2011.

IX. Selected outreach presentations

Hartshorn, J.A. Forest health issues in Northern Minnesota in 2017 (webinar). University of Minnesota
Extension – Master Woodland Owner Course. September and October 2017.

Hartshorn, J.A. Forest health issues in Northern Minnesota (workshop). Tower, Littlefork, Northome, Hill
City, MN. May through August 2017.

Hartshorn, J.A. Damaging forest insect and disease highlights of 2016. East Range Private Forest Management
Stakeholders Meeting. Virginia, MN. May 2017.

Hartshorn, J.A. Tick safety. Minnesota Department of Natural Resources. Grand Rapids, MN. April 2017.

Hartshorn, J.A. Predictions for 2017: spruce budworm, forest tent caterpillar, and storms. Forest Health
Workshop, Walker, MN. January 2017.

Hartshorn, J.A. Tree care: after the storm. South St. Louis Soil and Water Conservation District Tree Care
Workshop. Saginaw, MN. September 2016.

X. Selected invited presentations

Hartshorn, J.A. Pest profile: *Sirex noctilio*. Southern Forest Insect Work Conference. San Antonio, TX. July
2018.

Hartshorn, J.A. *Sirex* in the south: phenology, ecology, and biological control. University of Minnesota –
Department of Entomology Seminar. St. Paul, MN. February 2017.

Hartshorn, J.A. and M. Darr. Attraction of young, diverse communities to entomology. International Congress
of Entomology and Entomological Society of America. Orlando, FL. September 2016.

Hartshorn, J.A., L.D. Galligan, and F.M. Stephen. A synthesis of *Sirex* research in Arkansas. Southern Forest
Insect Work Conference. Fayetteville, AR. July 2015.

Hartshorn, J.A., L.D. Galligan, and F.M. Stephen. The potential for native nematodes to control non-native
woodwasps. Entomological Society of America, Southeastern Branch. Biloxi, MS. March 2015.

Hartshorn, J.A., and F.M. Stephen. Modeling *Sirex nigricornis* F. (Hymenoptera: Siricidae) flight patterns in
Arkansas. East Texas Forest Entomology Seminar. Lufkin, TX. April 2014.

Hartshorn, J.A., L.D. Galligan, and F.M. Stephen. Phenology of *Sirex nigricornis* F. International Symposium
on current *Sirex* Research. Ithaca, NY. October 2013.

Hartshorn, J.A., D.M. Keeler, A.J.W. Lynn-Miller, L.D. Galligan, and F.M. Stephen. Life history, oviposition
preferences, and incidence of nematodes of *Sirex nigricornis*. Interagency Forum on Invasive Species.
Annapolis, MD. January 2013.

XI. Selected conference presentations

Hartshorn, J.A. Writing effective application materials. Southern Forest Insect Work Conference. Melbourne, FL. July 2017.

Hartshorn, J. A., L. D. Galligan and F. M. Stephen. Effects of native nematodes on size and fecundity of native woodwasps in southeastern pine forests. Entomological Society of America National Meeting. Minneapolis, MN. November 2015.

Hartshorn, J.A. and F.M. Stephen. Comparing flight patterns of the native woodwasp, *Sirex nigricornis* F., with *Sirex noctilio*, a non-native threat to southeastern pine stands. Entomological Society of America, Southeastern Branch. Greenville, SC. March 2014.

Hartshorn, J.A., L.D. Galligan, D.J. Dalzotto, and F.M. Stephen. Oviposition and larval development of *Sirex nigricornis* F. in Arkansas. Southern Forest Insect Work Conference. New Orleans, LA. July 2013.

Hartshorn, J.A. and F.M. Stephen. Oviposition preferences of female *Sirex nigricornis* F. (Hymenoptera: Siricidae) in relation to differing moisture contents of *Pinus echinata*. Entomological Society of America. Knoxville, TN. November 2012.

Hartshorn, J.A. and F.M. Stephen. Moisture content in pine logs and its effects on oviposition by *Sirex nigricornis* F. (Hymenoptera: Siricidae). Entomological Society of America, Southeastern Branch, Little Rock, AR. March 2012.

Hartshorn, J.A. and F.M. Stephen. Effects of tree condition on oviposition behavior of *Sirex nigricornis* (Hymenoptera: Siricidae). Entomological Society of America. Reno, NV. November 2011.

XII. Selected posters

Hartshorn, J.A., L.D. Galligan, A.J.W. Lynn-Miller, and F.M. Stephen. *Sirex nigricornis* F. (Hymenoptera: Siricidae) oviposition and development relating to bolt age and a novel system for live-trapping wood borers. Southern Forest Insect Work Conference. Melbourne, FL. July 2017.

Hartshorn, J.A., L.J. Haavik, J.D. Allison, J.R. Meeker, W. Johnson, L.D. Galligan, K.D. Chase, J.J. Turgeon, J.J. Riggins, and F.M. Stephen. Emergence of adult female *Sirex nigricornis* F. and *S. noctilio* F. (Hymenoptera: Siricidae) coincides with a decrease in daily minimum and maximum temperature. USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2016.

Hartshorn, J.A., J.W. Bodart, L.D. Galligan, and F.M. Stephen. Natural enemies of *Sirex nigricornis* and implications for biological control of *S. noctilio* in the Southeast. Southern Forest Insect Work Conference. Charleston, SC. July 2014.

Hartshorn, J.A. and F.M. Stephen. Effects of log moisture content on the oviposition behavior of *Sirex nigricornis* (Hymenoptera: Siricidae). USDA Interagency Forum on Invasive Species. Annapolis, MD. January 2012.

XIII. Professional Societies and Affiliations

Entomological Society of America

International Union of Forest Research Organizations

North American Forest Insect Work Conference
Southern Forest Insect Work Conference

XIV. Selected Awards and Honors

- 2016 Distinguished Ph.D. Scholar, University of Arkansas
- 2015 Comstock Award for Outstanding Ph.D. Student, Ento Soc of America, Southeastern Branch
- 2014 Dwight Isely Outstanding Ph.D. Student Award, University of Arkansas, Dept of Ento
- 2014 Roger F. Anderson Award for Outstanding Graduate Student, Southern Forest Insect Work Conf
- 2012 Doctoral Academy Fellowship (2012-2016), University of Arkansas
- 2012 Dwight Isely Outstanding M.S. Student Award, University of Arkansas, Dept of Ento

XV. Selected Service

Professional Societies and Working Groups

Entomological Society of America

- 2016 Southeastern Branch Student Affairs Committee Ex-officio
- 2015 Southeastern Branch Student Affairs Committee Co-chair
- 2015 Organizer of the Southeastern Branch Student Symposium
- 2015 Co-moderated M.S. Paper Competition III at SEB, Student Debates Judge
- 2015 Student Debates Judge
- 2014 Appointed SEB Student Affairs Committee Representative

Southern Forest Insect Work Conference

- 2019 – 21 Executive Committee Counselor
- 2017 Organized “Professional development” symposium and workshop
- 2015 Appointed Local Arrangements Committee assistant
- 2015 Organized “Women in forest entomology” symposium
- 2014 Organized “Interactions between forest disturbance and insects” symposium

North American Forest Insect Work Conference

- 2016 Organized “Women in forest entomology” workshop
- 2016 Participated on “*Sirex* research” expert panel

Institutional Service

- 2017 Minnesota State Fair (DNR)
- 2014-16 Department Head Search Committee (UA)
- 2013-15 Distinguished Alumni Committee (chair 2014-15) (UA)
- 2010-14 Arkansas Insect Festival (UA)

XVI. Specialized professional training

- S-130/190 – Basic Wildland Firefighter Training
- L-180 – Human Factors in the Wildland Fire Service

S-270 – Basic Air Operations
Responsible Conduct of Research Training
Hymenoptera identification (HYMcourse)
Insect Chemical Ecology (ICE) Short Course

XVII. Other service

Environmental Entomology, reviewer
Agricultural and Forest Entomology, reviewer
Journal of Insect Behavior, reviewer
Forest Ecology and Management, reviewer
Forest Science, reviewer