

Ashley N. Schulz

Curriculum Vitae

Mississippi State University, Department of Forestry, Box 9681, Mississippi State, MS 39762
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EDUCATION

Doctor of Philosophy in Environmental Sciences; Arkansas State University, Jonesboro, AR

Degree Conferred: May 2020

Dissertation: Non-native insect invasions in natural ecosystems: impacts, policy, and evaluation of drivers using underutilized biocontrol datasets.

Advisor: Dr. Travis D. Marsico

Master of Science in Forest Resources; University of Georgia, Athens, GA

Degree Conferred: August 2015

Thesis: Evaluating dieback of eastern white pine (*Pinus strobus* L.) in the Southern Appalachian Mtns.

Advisor: Dr. Kamal J.K. Gandhi

Bachelor of Science in Forestry; University of Missouri, Columbia, MO

Degree Conferred: May 2013

McNair Scholars Project: Effects of prescribed fire on insect diversity in the Missouri Ozark Highlands.

Advisors: Drs. Rose-Marie Muzika and Bruce Cutter

PROFESSIONAL EXPERIENCE

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|--------------------------|---|
| August 2021 – Present | Assistant Professor; Department of Forestry, Mississippi State University, Starkville, MS |
| January 2020 – July 2021 | Postdoctoral Fellow; Supervisor: Dr. Ruth Hufbauer
Dept. of Agricultural Biology, Colorado State University, Ft. Collins, CO
<u>Project:</u> Forecasting high-impact insect invasions by integrating probability models with i-Tree from urban to continental scales. |
| August 2015 – Dec. 2019 | Graduate Research and Teaching Assistant; Advisor: Dr. Travis Marsico
Dept. of Biological Sciences (Environmental Science Program), Arkansas State University, Jonesboro, AR |
| August 2013 – July 2015 | Graduate Research Assistant; Advisor: Dr. Kamal Gandhi
D.B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA |
| May 2013 – August 2013 | Research Lab Technician; Supervisor: Dr. Rose-Marie Muzika
Forest Ecology Lab, University of Missouri, Columbia, MO
<u>Tasks:</u> Assisted with sorting of pitfall traps, identified ants to genus and species, made agar, plated various species of <i>Phytophthora</i> , and tended greenhouse soil trays for a plant diversity study. |
| July 2012 – May 2013 | McNair Scholar; Mentor: Dr. Rose-Marie Muzika
McNair Scholars Program, University of Missouri, Columbia, MO |

- May 2012 – June 2012 **Study Abroad Directed Research Student**; Mentor: Dr. Francisco Aguilar
EARTH University, Guácimo, Costa Rica; Project: An analysis of entomological impacts in tropical and temperate forested areas.
- July 2011 – August 2012 **Lab Technician/Office Assistant**; Supervisor: Dr. Rose-Marie Muzika
Department of Forestry, University of Missouri, Columbia, MO
Tasks: Assisted with the organization of the lab, processed pitfall traps, and followed lab protocol for the use of chemicals and tools. Organized purchasing card and student paperwork for the Department of Forestry.
- July 2011 – Sept. 2011 **Data Technician**; Supervisor: Dr. Francisco Aguilar
Forest Economics and Policy Lab, University of Missouri, Columbia, MO
Task: Entered and organized survey data into Microsoft Excel spreadsheets.
- August 2009 – May 2013 **Teaching Assistant**; Mentors: Mrs. Laura Hertel & Dr. Rose-Marie Muzika
School of Natural Resources, University of Missouri, Columbia, MO

RESEARCH PUBLICATIONS AND PRESENTATIONS

Manuscript(s) in Review, Revision, or Press

8. **Schulz, A.N.**, A.M. Mech, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A. Hoover, R.A. Hufbauer, A.M. Liebhold, T.D. Marsico, K.F. Raffa, P.C. Tobin, D.R. Uden, and K.A. Thomas. 2021. Predicting non-native insect impact: focusing on the trees to see the forest. *Biological Invasions*.

Refereed Publications

7. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. 2021. Strengthening the ties that bind: an evaluation of cross-disciplinary communication between invasion ecologists and biological control researchers in entomology. *Annals of the Entomological Society of America* 114(2): 163-174.
<https://doi.org/10.1093/aesa/saaa052>
6. **Schulz, A.N.**, A.M. Mech, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, D.A. Herms, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, K.A. Thomas, P.C. Tobin, and T.D. Marsico. 2020. The impact is in the details: evaluating a standardized protocol and scale for determining non-native insect impact. *NeoBiota* 55: 61-83. <https://doi.org/10.3897/neobiota.55.38981>
5. Mech, A.M., K.A. Thomas, T.D. Marsico, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, **A.N. Schulz**, D.R. Uden, and P.C. Tobin. 2019. Evolutionary history predicts high-impact invasions by herbivorous insects. *Ecology and Evolution* 9(21): 12216-12230. <https://doi.org/10.1002/ece3.5709>
4. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. 2019. Successful invasions and failed biocontrol: the role of antagonistic species interactions. *BioScience* 69(9): 711-724.
<https://doi.org/10.1093/biosci/biz075>
3. **Schulz, A.N.**, A.M. Mech, M.M. Cram, C. Asaro, D.R. Coyle, R.D. Lucardi, S. Lucas, and K.J.K. Gandhi. 2018. Association of *Caliciopsis pinea* Peck and *Matsucoccus macrocitrices* Richards with eastern white pine (*Pinus strobus* L.) seedling dieback. *Forest Ecology and Management* 423: 70-83.
<https://doi.org/10.1016/j.foreco.2018.03.013>
2. **Schulz, A.N.**, A.M. Mech, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, and K.J.K. Gandhi. 2018. Assessment of abiotic and biotic factors associated with eastern white pine (*Pinus strobus* L.) dieback in the Southern Appalachian Mountains. *Forest Ecology and Management* 423: 59-69.
<https://doi.org/10.1016/j.foreco.2018.02.021>
1. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. 2013. The effects of prescribed fire on insect diversity in the Missouri Ozark Highlands. *MU McNair Journal* 21: 8-12.
<http://mcnair.missouri.edu/Journal2013.pdf> (issue cover photo)

Manuscript(s) in Preparation

3. Uden, D.R., C.R. Allen, M.P. Ayres, D.A. Herms, A.M. Hoover, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, R.A. Hufbauer, A.M. Liebhold, T.D. Marsico, A.M. Mech, K.F. Raffa, **A.N. Schulz**, K.A. Thomas, and P.C. Tobin. Relative risk of future insect invasions for North American conifers. For submission to *Ecological Applications*.
2. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. Uncovering the drivers of non-native insect invasions using underutilized biocontrol datasets. For submission to *Ecology Letters*.
1. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. Policy considerations for detecting and managing potentially high-impact, non-native insects and plants in the United States. For submission to *Environmental Science and Policy*.

Published Datasets

2. Mech, A.M., A.M. Hoover, **A.N. Schulz**, B.F. Barnes, K.S. Boyd, L. Durden, N.P. Havill, R.A. Hufbauer, A.M. Liebhold, T.D. Marsico, K.F. Raffa, C. Singareddy, E. Teach, P.C. Tobin, A.W. Wolf, and K.A. Thomas. 2020. Traits and Factors Catalog (TRAFAC): Hardwood specialists of North America. U.S. Geological Survey data release. <https://doi.org/10.5066/P9FT7C1O>
1. Mech, A.M., K.A. Thomas, N.P. Havill, **A.N. Schulz**, and P.C. Tobin. 2020. Traits and Factors Catalog (TRAFAC): Conifer specialists of North America. U.S. Geological Survey data release. <https://doi.org/10.5066/P9CLFQMI>

Book Reviews

3. **Schulz, A.N.** 2021. "Evolutionary Dynamics of Plant-Pathogen Interactions" by Jeremy J. Burdon and Anna-Liisa Laine. *Plant Science Bulletin* 67(2): 131-132.
2. **Schulz, A.N.** 2018. "Nature's Fabric: Leaves in Science and Culture" by David Lee. *Plant Science Bulletin* 64(1): 49-51.
1. Green, V.S. and **A.N. Schulz**. 2018. "Growing a Revolution: Bringing Our Soil Back to Life" by David R. Montgomery. *Agronomy Journal* (online): <https://agronomy.org/publications/book-reviews/view/82>

Extension Publications, Fact Sheets, and Newsletter Articles

† Denotes that the publication was peer-reviewed

5. †Whitney, T.D., **A.N. Schulz**, C. Asaro, M.M. Cram, R.D. Lucardi, E.P. McCarty, and K.J.K. Gandhi. 2021. Eastern white pine dieback in the Southern Appalachian Mountains. University of Georgia Warnell Outreach Publication WSFNR-21-58A. 7 p. <https://www.warnell.uga.edu/outreach/publications/individual/eastern-white-pine-dieback-southern-appalachian-mountains>
4. Durden, L.A., **A.N. Schulz**, A.M. Mech, and K.A. Thomas. 2020. A not so sudden impact: historical relations between conifers and insects can help predict damage by nonnative insects. U.S. Geological Survey Fact Sheet 2020-3039. 4 p. <https://doi.org/10.3133/fs20203039>
3. **Schulz, A.N.** 2013. "Do You Have What It Takes?" The Resource: The MU School of Natural Resources Biannual Newsletter. Spring 2013 Edition: 20 p.
2. **Schulz, A.N.** 2012. "Forestry Department Explores Costa Rica." The Resource: The MU School of Natural Resources Biannual Newsletter. Fall 2012 Edition: 21 p.
1. **Schulz, A.N.** 2012. "The Great Ambassador Summer." The Resource: The MU School of Natural Resources Biannual Newsletter. Fall 2012 Edition: 21 p.

Conference Proceedings

2. **Schulz, A.N.**, A.M. Mech, C.F. Aoki, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A.M. Hoover, A.M. Liebhold, S. Maco, T.D. Marsico, K.F. Raffa, K.A. Thomas, P.C. Tobin, D.R. Uden, and R.A. Hufbauer. Synthesis and utilization of big data for forecasting the impacts of non-native forest insects in North America. Proceedings of the 2021 North American Forest Insect Work Conference. USDA Forest Service General Technical Report. (in press)

1. Mech, A.M., K.A. Thomas, T.D. Marsico, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, **A.N. Schulz**, D.R. Uden, and P.C. Tobin. 2021. How available data can be used to predict the impact of non-native forest insects. Society of American Foresters 2020 National Convention Proceedings (Supplemental Information). *Journal of Forestry* 119(2), pp. S87, <https://doi.org/10.1093/jofore/fvab002>

Invited Presentation

2. **Schulz, A.N.**, R.A. Hufbauer, C.F. Aoki, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A.M. Hoover, A.M. Liebhold, S. Maco, T.D. Marsico, K.F. Raffa, K.A. Thomas, P.C. Tobin, D.R. Uden, and A.M. Mech. May 2021. Synthesis and utilization of big data for forecasting the impacts of non-native forest insects in North America. North American Forest Insect Work Conference. Virtual Conference.
1. **Schulz, A.N.**, A.M. Mech, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, and K.J.K. Gandhi. February 2018. What's been "bugging" the white pine? A quest to inspect the abiotic and biotic factors associated with *Pinus strobus* dieback in the Southern Appalachian Mountains. USDA-AFRI White Pine Health in Eastern Timberlands Workshop. Athens, GA.

Contributed Presentations

23. **Schulz, A.N.**, A.M. Mech, C.F. Aoki, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A.M. Liebhold, S. Maco, T.D. Marsico, K.F. Raffa, K.A. Thomas, P.C. Tobin, D.R. Uden, and R.A. Hufbauer. April 2021. Forecasting impact of non-native, phytophagous insects relies on different factors based on host tree specialization. 2021 International Association for Landscape Ecology – North America Annual Meeting. Virtual Conference.
22. **Schulz, A.N.**, A.M. Mech, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A. Hoover, A.M. Liebhold, T.D. Marsico, K.F. Raffa, K.A. Thomas, P.C. Tobin, D.R. Uden, and R.A. Hufbauer. November 2020. Which factors drive impact of introduced insects feeding on North American conifers and woody angiosperms? The data speak. 68th Annual Meeting of the Entomological Society of America. Virtual Conference.
21. Mech, A.M., K.A. Thomas, T.D. Marsico, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, **A.N. Schulz**, D.R. Uden, and P.C. Tobin. October 2020. How available data can be used to predict the impact of non-native forest insects. Society of American Foresters National Convention. Virtual Conference.
20. Thomas, K.A., A.M. Mech, M.P. Ayres, P.C. Tobin, D.A. Herms, N.P. Havill, D.R. Uden, **A.N. Schulz**, C.R. Allen, K.J.K. Gandhi, J. Gurevitch, A. Hoover, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, and T.D. Marsico. August 2020. Predicting the impact of non-native insects: the data speak. 105th Annual Ecological Society of America Meeting. Virtual Conference.
19. Cram, M.M., S. Lucas, **A.N. Schulz**, and K.J.K. Gandhi. February 2018. Pathogenicity of fungi isolated from cankers found on eastern white pine (*Pinus strobus* L.) saplings across the southeastern U.S. USDA-AFRI White Pine Health in Eastern Timberlands Workshop. Athens, GA.
18. Mech, A., P.C. Tobin, T.D. Marsico, K.A. Thomas, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, A. Hoover, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, **A.N. Schulz**, and D. Uden. January 2018. Predicting the impact of non-native specialist insects. 29th USDA Interagency Research Forum on Invasive Species. Annapolis, MD.
17. Mech, A., P.C. Tobin, T.D. Marsico, K.A. Thomas, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, A. Hoover, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, **A.N. Schulz**, and D. Uden. August 2017. Predicting the impact of non-native specialist insects feeding on North American host plants. 102nd Ecological Society of America Annual Meeting. Portland, OR.
16. Mech, A., P.C. Tobin, T.D. Marsico, K.A. Thomas, D.A. Herms, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, A. Hoover, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, **A.N. Schulz**, and D. Uden. August 2017. Predicting the next high-impact insect invasion. USGS John Wesley Powell Center for Analysis and Synthesis Seminar Series. Ft. Collins, CO.

15. Lucardi, R.D., **A.N. Schulz**, and T.D. Marsico. July 2017. Strengthening the ties that bind: an examination of cross-disciplinary communication between the fields of invasion ecology and biocontrol using evaluative bibliometrics. Southern Forest Insect Work Conference (SFIWC). Melbourne, FL.
14. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. June 2017. The forgotten fourth trophic level: natural enemies influence the success or failure of non-native invaders and biological control agents. Botanical Society of America Conference. Fort Worth, TX.
13. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. April 2017. Who cites whom? Communication insights from a bibliometric analysis of invasion and biological control literature. 101st Annual Arkansas Academy of Science Meeting. Conway, AR.
12. **Schulz, A.N.** and T.D. Marsico. July 2016. A quest to promote greater synergy between invasion ecology and biological control. International Union of Forest Research Organizations (IUFRO) Biological Invasions in Forests Workshop. Shepherdstown, WV.
11. Whitney, T.D., **A.N. Schulz**, C. Asaro, D.R. Coyle, M.M. Cram, A.M. Mech, R.D. Lucardi, and K.J.K. Gandhi. July 2015. Link between a scale insect and eastern white pine dieback: overview and future directions. Southern Forest Insect Work Conference (SFIWC). Fayetteville, AR.
10. **Schulz, A.N.**, A.M. Mech, D.R. Coyle, R.D. Lucardi, M.M. Cram, C. Asaro, and K.J.K. Gandhi. March 2015. What's "bugging" the white pine? An update on *Matsucoccus macrocitrices* in the Southern Appalachian Mountains. H.O. Lund Entomology Club; Lund Week. Athens, GA.
9. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. March 2015. An update on the range of *Matsucoccus macrocitrices* and dieback of the woody "weed" of the east. Southern Appalachian Forest Entomology/Pathology Seminar. Crossnore, NC.
8. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. February 2015. Determining the distribution of *Matsucoccus macrocitrices* in white pine forests of the Southern Appalachian Mountains. Warnell Graduate Student Symposium. Athens, GA.
7. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. November 2014. Mapping the distribution of a potentially new tiny terror in southern white pine forests. 62nd Annual Meeting of the Entomological Society of America. Portland, OR.
6. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. July 2014. Severity and extent of white pine dieback in the Chattahoochee National Forest in Georgia. Southern Forest Insect Work Conference (SFIWC). Charleston, SC.
5. **Schulz, A.N.**, R.D. Lucardi, N. Nibbelink, and K.J.K. Gandhi. March 2014. Assessing the distribution of eastern white Pine (*Pinus strobus*) dieback in the Southern Appalachian Mountains. Southeastern Evolution and Ecology Conference (SEEC). Statesboro, GA.
4. **Schulz, A.N.**, A.M. Mech, D.R. Coyle, C. Asaro, M.M. Cram, R.D. Lucardi, and K.J.K. Gandhi. March 2014. Patterns and causes of white pine dieback in the Southern Appalachian Mountains. Southern Appalachian Forest Entomology/Pathology Seminar. Crossnore, NC.
3. **Schulz, A.N.**, A.M. Mech, D.R. Coyle, C. Asaro, M.M. Cram, R. Lucardi, and K.J.K. Gandhi. February 2014. Monitoring eastern white pine (*Pinus strobus*) dieback in the Southern Appalachian Mountains. Warnell Graduate Student Symposium. Athens, GA.
2. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. April 2013. The effects of prescribed fire on insect diversity in the Missouri Ozarks. MU McNair Scholars Conference. Columbia, MO.
1. **Schulz, A.N.** September 2012. An analysis of entomological impacts in tropical and temperate forested areas. University of Missouri Department of Forestry Brown Bag Seminar. Columbia, MO.

Poster Presentations

21. Thomas, K.A., **A.N. Schulz**, A.M. Mech, C.F. Aoki, M.P. Ayres, K.J.K. Gandhi, N.P. Havill, D.A. Herms, A.M. Liebhold, S. Maco, T.D. Marsico, K.F. Raffa, P.C. Tobin, D.R. Uden, and R.A. Hufbauer. April 2021. The impact of non-native insects on forest trees relies on different factors based on host tree specialization. Entomological Society of America Pacific Branch Meeting. Virtual Conference.

20. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. November 2020. What drives successful non-native insect establishment and impact? Lessons for invasion theory from biological control datasets. 68th Annual Meeting of the Entomological Society of America. Virtual Conference.
19. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. November 2019. Teamwork makes the dream work: evaluation of interdisciplinarity between the fields of invasion ecology and biocontrol using scientometrics. 67th Annual Meeting of the Entomological Society of America. St. Louis, MO.
18. **Schulz, A.N.**, A.M. Mech, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, D.A. Herms, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, K.A. Thomas, P.C. Tobin, and T.D. Marsico. November 2018. Do all great minds think alike? An assessment of expert perspective on the impacts of non-native insects in North America. Entomological Societies of America, Canada, and British Columbia Joint Annual Meeting. Vancouver, BC, Canada.
17. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. March 2018. In pursuit of common ground: evaluation of cross-disciplinary communication effort between the fields of invasion ecology and biological control. 79th Annual Meeting of the Association of Southeastern Biologists. Myrtle Beach, SC.
16. **Schulz, A.N.**, A.M. Mech, C.R. Allen, M.P. Ayres, K.J.K. Gandhi, J. Gurevitch, N.P. Havill, D.A. Herms, R.A. Hufbauer, A.M. Liebhold, K.F. Raffa, M.J. Raupp, K.A. Thomas, P.C. Tobin, and T.D. Marsico. January 2018. Assessment of expert perceptions of non-native insect impacts: implications for policy and management. Missouri Natural Resources Conference (MNRC). Osage Beach, MO.
15. **Schulz, A.N.**, R.D. Lucardi, and T.D. Marsico. June 2017. The quest for common ground: an evaluation of communication effort between the fields of invasion ecology and biocontrol using bibliometric analysis. Botanical Society of America Conference. Fort Worth, TX.
14. **Schulz, A.N.** and T.D. Marsico. April 2017. Finding common ground: a bibliometric analysis and review to assess communication effort between the fields of invasion ecology and biocontrol. 7th Annual Create@State Symposium of Research, Scholarship, and Creativity. Jonesboro, AR.
13. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. July 2015. What's been "bugging" the white pine? Updates on the relationships within the eastern white pine-*M. macrocitrices*-canker complex. Southern Forest Insect Work Conference (SFIWC). Fayetteville, AR.
12. **Schulz, A.N.**, R.D. Lucardi, M.M. Cram, and K.J.K. Gandhi. March 2015. What's happening to the white pine? An assessment of the eastern white pine – scale insect – canker complex in the Southern Appalachian Mountains. Southeastern Evolution and Ecology Conference (SEEC). Athens, GA.
11. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. February 2015. What's "bugging" the white pine? An Assessment of the white pine–scale insect–canker complex in the Southern Appalachian Mountains. Warnell Graduate Student Symposium. Athens, GA.
10. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. January 2015. Interactions between eastern white pine (*Pinus strobus*) and the recently discovered scale insect–pathogen complex in the Southern Appalachians. 26th USDA Interagency Research Forum on Invasive Species. Annapolis, MD.
9. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. November 2014. Cryptic killer or indulgent insect? *Matsucoccus macrocitrices* and Its relationship with *Pinus strobus* in the Southern Appalachian Mountains. 62nd Annual Meeting of the Entomological Society of America. Portland, OR.
8. Gandhi, K.J.K., C. Asaro, D.R. Coyle, M.M. Cram, A.M. Mech, and **A.N. Schulz**. October 2014. Interactions between *Matsucoccus macrocitrices*, fungal pathogens, and eastern white pine dieback in the Southern Appalachians. Proceedings of the International Union of Forest Research Organizations XXIV World Congress. Salt Lake City, UT.
7. **Schulz, A.N.**, C. Asaro, D.R. Coyle, M.M. Cram, R.D. Lucardi, A.M. Mech, and K.J.K. Gandhi. July 2014. The BFG complex: assessing correlations between *Matsucoccus macrocitrices*, *Caliciopsis*

pinea and *Pinus strobus* dieback in North Georgia. Southern Forest Insect Work Conference (SFIWC). Charleston, SC.

6. Gandhi, K.J.K., A.M. Mech, C. Asaro, D.R. Coyle, M. Cram, and **A.N. Schulz**. November 2013. Interactions between *Matsucoccus* scale insect/pathogen complex and white pine. 61st Entomological Society of America Meeting. Austin, TX.
5. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. August 2013. The effects of prescribed fire on insect diversity in the Missouri Ozarks. 98th Ecological Society of America Meeting. Minneapolis, MN.
4. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. April 2013. The effects of prescribed fire on insect diversity in the Missouri Ozarks. MU McNair Scholars Conference. Columbia, MO.
3. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. April 2013. The effects of prescribed fire on insect diversity in the Missouri Ozarks. MU Undergraduate Research and Creative Achievements Forum. Columbia, MO.
2. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. April 2013. The effects of prescribed fire on insect diversity in the Missouri Ozarks. MU Life Sciences Week Student Poster Session. Columbia, MO.
1. **Schulz, A.N.**, L.W. Wright, and R.M. Muzika. February 2013. Effects of prescribed fire on insect diversity in the Missouri Ozarks. Missouri Natural Resources Conference. Osage Beach, MO.

Working Group Participation and Team Collaborations

- **Member**; Working with the Center for Tree Science at The Morton Arboretum to develop research focused on “Terrestrial Responses to Emerging Environments through Time, Integrated from Moments to Eons (TREETIME)” (March 2021 – Present)
- **Member**; USDA Forest Service National Urban and Community Forestry Advisory Council (NUCFAC) Challenge Working Group on “Forecasting high-impact insect invasions by integrating probability models with i-Tree from urban to continental scales” (September 2019 – Present)
- **Member**; USGS John Wesley Powell Center for Analysis and Synthesis Working Group on “Predicting the next high-impact insect invasion: Elucidating factors determining the risk of introduced herbivorous insects on North American native plants” (April 2016 – Present)

AWARDS AND GRANTS

Research and Travel Grants (Total to date: \$567,734)

- 2019 – 2022 **Research Grant, USDA Forest Service National Urban and Community Forestry Advisory Council (NUCFAC) Challenge Cost-Share Grant Program**
Forecasting high-impact insect invasions by integrating probability models with i-Tree from urban to continental scales. PI: R.A. Hufbauer. Awarded \$561,784 (50% is cost-share). Project partner; contributed to project objectives, methodologies, and grant writing.
- 2014 – 2015 **Research Grant, Sigma Xi Grants-in-Aid of Research**
Monitoring the dieback of eastern white pine (*Pinus strobus*) in the Southern Appalachian Mountains, 2014. PI: A.N. Schulz. Awarded \$550 for field and lab supplies.
- 2012 – 2013 **Research Grant, MU McNair Scholars Program**
The effects of prescribed fire on insect diversity in the Missouri Ozarks, 2012. PI: A.N. Schulz. Awarded \$400 for field and lab supplies.
- 2012 **Travel Grant, USDA National Institute of Food and Agriculture (NIFA)**
Internationalization of Forestry Education, Research, and Extension: United States-Costa Rica Cooperation, 2011. PI: F.X. Aguilar. Awarded \$5,000 as one of three international student exchange fellowship recipients at the University of Missouri to study abroad and conduct a research project in Costa Rica.

Honors and Awards

- 2020 Outstanding Environmental Science Doctoral Student Award, Arkansas State University College of Sciences and Mathematics. Jonesboro, AR.

2019	1 st Place, P-IE Graduate Student Virtual Poster Competition. 67 th Annual Entomological Society of America Meeting. St. Louis, MO.
2018	2 nd Place, P-IE Graduate Student Virtual Poster Competition. Entomological Societies of America, Canada, and British Columbia Joint Annual Meeting. Vancouver, BC.
2018	Outstanding Graduate Student Award, Arkansas State University Graduate Student Council. Jonesboro, AR.
2015	2 nd Place, Oral Presentation. Warnell Graduate Student Symposium, University of Georgia. Athens, GA.
2014	1 st Place, P-IE Graduate Student Poster Competition. 62 nd Annual Entomological Society of America Meeting. Portland, OR.
2013	Outstanding Senior Award, University of Missouri School of Natural Resources. Columbia, MO.
2013	2 nd Place, Student Poster Competition. Missouri Natural Resources Conference. Osage Beach, MO.
2011	Unsung Hero Award, University of Missouri Student Union Programming Board. Columbia, MO.

Scholarships (Total to date: \$22,155)

2018	A-State Graduate Student Council Officer Scholarship	\$250.00
2017	A-State Graduate Student Council Officer Scholarship	\$250.00
2016	Great Lakes National Scholarship	\$2,500.00
2014	Robert Gooding McAlpine Scholarship	\$1,000.00
	Great Lakes National Scholarship	\$2,500.00
2013	Charles Fritschle Scholarship	\$2,200.00
	ESTM Access Missouri Grant	\$1,100.00
	Joe and Hazel Cannon Memorial Scholarship	\$450.00
	Donald P. Duncan Scholarship	\$950.00
	GFWC Scholarship in Forestry	\$500.00
	MU Natural Resources Alumni Assoc. Scholarship	\$500.00
	MU Forestry Club Scholarship	\$400.00
	Conservation Federation Scholarship	\$100.00
2012	Roger Dustin Shaw Memorial Scholarship	\$3,500.00
	ESTM Access Missouri Grant	\$1,030.00
2011	Osal and Juanita Capps Scholarship	\$2,100.00
	Roger Dustin Shaw Memorial Scholarship	\$1,500.00
	Forestry Development Scholarship	\$775.00
	Natural Resources Education Scholarship	\$550.00

TEACHING EXPERIENCE

Instructor of Record

Mississippi State University

Dendrology (3 credits)

Semester taught: Fall 2021

Enrollment: 47 students

Course Content: The classification (systematics), morphology, phenology, ecology, geographic range, and natural history of trees. Field exercises to promote the recognition and identification of trees and other woody plants.

Responsibilities: Developed materials for the course, including the syllabus, assignments, rubrics, quizzes, exams, lectures, and lecture handouts. Responsible for teaching and grading.

*Arkansas State University***Principles and Practices of Forestry** (3 credits)

Semester taught: Fall 2018

Enrollment: 9 students

Course Content: Fundamental concepts of forestry for wildlife ecology and management majors, including an introduction to forest ethics, dendrology, ecology, health, silviculture, mensuration, and management.

Teaching Assistant*Arkansas State University***Microbiology Lab** (4 credits)

Supervisor: Dr. David Gilmore

Semesters as grader: Spring 2019, Fall 2019

Enrollment: 48 students (Sp 2019), 47 students (F 2019)

Course Content: Morphology, physiology, taxonomy, and cultivation of bacteria, viruses, fungi, and protozoans. Relationship of microorganisms to animals, plants, and the environment.

Responsibilities: Graded student reports from lab experiments on the effects of lysozyme on Gram positive and negative bacteria, bacterial growth in hamburger meat, diauxic growth, and *Staphylococcus* identification.**Economic Entomology Lab** (1 credit)

Supervisor: Dr. Tanja McKay

Semester taught: Spring 2018

Enrollment: 16 students

Course Content: Taxonomy and identification of insect pests related to the environment.

Responsibilities: Responsible for lab set up, clean up, PPT lecture development, creating quizzes and exams, grading, and teaching.

Mycology Lab (1 credit)

Supervisor: Dr. Martin Huss

Semester taught: Fall 2017

Enrollment: 5 students

Course Content: Morphology, cytology, genetics, and physiology of fungi.

Responsibilities: Assisted with field forays, grading, lab set up and clean up, and maintained student fungal decomposition experiments (maintained the experiments, photographed fungal growth, helped students weigh samples, and organized and analyzed data from the experiment for students to use in their reports).

*University of Missouri***Forest Health and Protection Lab** (4 credits with lecture)

Supervisor: Dr. Rose-Marie Muzika

Semester taught: Spring 2013

Enrollment: 42 students

Course Content: Fundamental concepts of forest pathology and forest entomology, including emphasis on ecological principles and management strategies.

Responsibilities: Helped create the syllabus and curriculum for the section on forest pathology, presented pathology and entomology lectures, created lab handouts, proctored lab quizzes, and helped grade final insect collections.

Forest Ecology Lab (5 credits with lecture)

Supervisor: Dr. Rose-Marie Muzika
 Semester taught: Fall 2012
 Enrollment: 20 students
 Course Content: Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure, and function.
 Responsibilities: Organized lab equipment, assigned student lab groups, taught students about various sampling techniques (e.g., fixed area plots, prism plots, transects, quadrats) used in forestry, helped students with sampling and data collection, answered questions about course content (lecture and lab), graded some assignments, and proctored lecture exams.

Learning Strategies for College Students (2 credits)

Supervisor: Mrs. Laura Hertel
 Semesters taught: Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012
 Enrollment: 10 students (F 2009), 10 students (Sp 2010), 18 students (F 2010), 11 students (Sp 2011), 37 students (F 2011), 10 students (Sp 2012), 12 students (F 2012)
 Course Content: Students' learning strategies are assessed, and their needs are given greatest emphasis. Learning through reading and listening are given major consideration as are the corollary skills of studying and note taking.
 Responsibilities: Led classes and presented lectures on topics such as diversity, résumés, academic ethics, time management, study abroad, goal setting, career choice, and writing research papers. Created and graded assignments and exams and helped create the syllabus.

Guest Lectures

5. **Schulz, A.N.** April 2021. Pests and pathogens of *Pinus strobus*: the tree that built America. Forest Pest Management. West Virginia University.
4. **Schulz, A.N.** and C.L. Brissey. April 2014. Beetles, Butterflies, and Bugs: Tales of the Tree Slayers. FORS 1000: Introduction to Forestry. University of Georgia.
3. **Schulz, A.N.** March 2013. Résumés 101. SSC 1150: Learning Strategies for College Students. University of Missouri.
2. **Schulz, A.N.** September 2012. An analysis of entomological impacts in tropical and temperate forested areas. FOR 4320: Forest Ecology. University of Missouri.
1. **Schulz, A.N.** October 2011. Résumés for Natural Resources Professionals. INTDSC 2001: Proseminar in Interdisciplinary Studies. University of Missouri.

Mentorship

- Mentored an “EntoPOC Instar” (entomology student from a historically excluded group) for the 68th Annual Entomological Society of America Meeting (November 2020)
- Ecology and Evolutionary Biology Mentor Match Program Mentor (August 2020 – Present)
- Served as a peer mentor for graduate student colleagues at Arkansas State University and assisted with formation of thesis drafts and editing, manuscript development, presentation creation, and statistics
- Master’s Research, University of Georgia, trained four technicians (February 2014 – August 2014)
- Peer Mentoring Program, University of Missouri, mentored eight freshmen (August 2010 – May 2013)
- Teaching Assistant Mentor, University of Missouri, mentored three fellow teaching assistants for Learning Strategies for College Students (August 2011 – January 2013)

SERVICE AND OUTREACH

Professional Service

Professional Affiliations

Arkansas Forestry Association, Botanical Society of America, Entomological Society of America, Honor Society of Phi Kappa Phi, Society of American Foresters, Xi Sigma Pi National Forestry Honor Society

Service to Professional Societies

- **Research Presentation and Travel Scholarship Reviewer**; Society for Advancement of Chicanos/Hispanics and Native Americans in Science [SACNAS] (April 2021 – Present)
- **Reviewer**; British Ecological Society Review College (reviewed small research grants, large research grants, Ecologists in Africa grants, and outreach grants; March 2021 – Present)
- **Co-lead and member**; Entomological Society of America Plant-Insect Ecosystem (P-IE) Invasive and Outbreking Species Hot Topics Team (tasked with serving on a discussion panel at the 2020 annual meeting, composing a proposal on how the society can address key issues regarding invasive and outbreaking insects, and carrying out the tasks proposed; September 2020 – Present)

Organized Workshops and Symposia

- Co-organized (with A.M. Mech and R.A. Hufbauer) a six-speaker session on “Using big data to answer big questions in forest entomology” at the North American Forest Insect Work Conference (Virtual Conference, May 2021).
- Organized and presented “The Fine Art of Polishing and Critiquing Presentations” for undergraduate and graduate students at Arkansas State University (March 2016 & 2017).
- Co-organized the Warnell Graduate Student Symposium at the University of Georgia, including organization of the social and poster session (24 posters), oral presentation sessions (50 oral presentations), panel discussion, silent auction, final awards ceremony, and assembly of the program and proceedings (February 2015).
- Organized the “Getting into Graduate School” panel of natural resources graduate students and faculty for University of Georgia Warnell School of Forestry and Natural Resources undergraduate students interested in attending grad school (November 2014).
- Organized and presented a student leadership workshop with information on how to run club meetings, motivate membership and participation, access school resources, and fundraise for new club officers in the School of Natural Resources at the University of Missouri (August 2011).

Ad-Hoc Journal Reviewer

The American Naturalist (2), BioControl (1), BioScience (1), Ecology and Society (1), Journal of Applied Entomology (2), Journal of Economic Entomology (1), Journal of Forestry (1), Plant Ecology and Diversity (2), Botanical Society of America Plant Science Bulletin (1)

Conference Volunteer Work

- **Moderator**; Open Session, North American Forest Insect Work Conference (May 2021)
- **Moderator**; Public Education and Outreach Hot Topics Team, 68th Annual Entomological Society of America Meeting (November 2020)
- **Poster Judge**; Colorado State University Graduate Student Showcase (November 2020)
- **Moderator**; Create@State Symposium of Research, Scholarship, & Creativity (April 2017 & 2018)
- **Presentation Judge**; Southeastern Ecology and Evolution Conference (March 2015)
- **Moderator**; Warnell Graduate Student Symposium (February 2015)
- **Poster Judge**; Southeastern Ecology and Evolution Conference (March 2014)

University Service

Mississippi State University

- Department of Forestry Representative; College of Forest Resources Recruitment Committee (August 2021 – Present)

Colorado State University

- Department of Agricultural Biology Representative; College of Agricultural Sciences Strategic Planning Committee for the Inclusion, Diversity, and Equity in Agriculture (IDEA) Center (March 2021 – June 2021)
- Postdoctoral Co-Representative (elected); Department of Agricultural Biology Diversity, Equity, and Inclusion Committee (September 2020 – July 2021), Departmental Reform Sub-Committee (March 2021 – July 2021)

Arkansas State University

- Graduate Student Council representative on the following shared governance and university committees:
 - A-State Assessment Committee (January 2018 – April 2018)
 - Academic Budget Committee (September 2017 – April 2018)
 - Graduate Policy Group (November 2017 – April 2018)
 - Faculty Achievement and Awards Committee (September 2017 – April 2018)
 - Graduate Council (September 2017 – April 2018)
 - Shared Governance Oversight Committee (September 2017 – May 2018)
 - University Planning Committee (May 2017 – May 2018)
- Secretary; Faculty Achievement and Awards Committee (September 2017 – April 2018)
- Department of Biological Sciences Seminar Series Coordinator (January 2017 – April 2017)
- Department of Biological Sciences Greenhouse Manager (August 2015 – May 2018)
- A-State Graduate Student Council
 - President (May 2017 – May 2018)
 - Environmental Science Program Representative (September 2016 – May 2018)
- A-State Student Research Council
 - Chair (May 2017 – May 2018)
 - Graduate Co-Chair (January 2016 – May 2017)

University of Georgia

- Xi Sigma Pi National Forestry Honor Society Member (Xi Chapter) (May 2014 – Present)
- H.O. Lund Entomology Club Member (October 2013 – May 2015)
- Warnell Graduate Student Association (WGSA)
 - Vice President (May 2014 – July 2015)
 - Exit Interview Conductor (May 2014 – July 2015)
 - Symposium Co-Chair (January 2015 – February 2015)
 - Member (September 2013 – July 2015)

University of Missouri

- Natural Resources Alumni Association
 - Member (May 2013 – Present)
 - Student Representative (August 2010 – May 2013)
- Griffiths Leadership Society for Women, Member (August 2012 – May 2013)
- School of Natural Resources Student Ambassador (August 2009 – May 2013)
- School of Natural Resources Peer Mentoring Program Peer Mentor (August 2010 – May 2013)

- College of Agriculture, Food, and Natural Resources (CAFNR) Peer Career Coach (August 2011 – December 2011)
- MU Forestry Club
 - Member (January 2009 – May 2012)
 - Historian (January 2009 – May 2009)
- School of Natural Resources Student Council
 - President (August 2010 – May 2012)
 - Secretary (August 2009 – May 2010)

Public Service and Outreach

- 2018 **Judge**; Valley View Intermediate School 6th Grade Science Fair (March 2018)
- 2017 **Volunteer**; Arkansas Science Festival Science Expo (October 2017)
Volunteer; Helped teach 50 local K-12 homeschool students about plants and insects (July 2017)
Judge; International Studies Magnet School Science Fair (May 2017)
Judge; Valley View Intermediate School 6th Grade Science Fair (March 2017)
- 2016 **Volunteer**; Arkansas State University Mad Scientist Glo Run (October 2016)
Volunteer; Arkansas State DNA Day Celebration (March 2016)
Judge; Valley View Intermediate School 6th Grade Science Fair (March 2016)
- 2015 **Volunteer**; Arkansas State University Mad Scientist Glo Run (October 2015)
Special Awards Judge; Georgia Science and Engineering Fair (March 2015)
- 2014 **Insect Merit Badge Co-Instructor**; Boy Scouts of America Advance–A–Rama (October 2014)
Forest Entomology Extension; Insectival at the GA State Botanical Garden (September 2014)
Volunteer; UGA Days-Clarke County High School Field Trip to Whitehall Forest (January 2014)
- 2013 **Insect Merit Badge Co-Instructor**; Boy Scouts of America Advance–A–Rama (October 2013)
Forest Entomology Extension; Insectival at the GA State Botanical Garden (September 2013)
- 2012 **Volunteer Forest Inventory Assistant**; Missouri Department of Conservation (July 2012)
- 2011 **Forestry Student Representative**; Meet Mizzou Day (September 2011)
Lumberjack (Sawing/Chopping Show); South Farm Showcase (September 2011)
University of Missouri Forestry Extension Volunteer; Missouri State Fair (August 2011)
Volunteer Trout/Copepod Data Collector; Missouri Department of Conservation (July 2011)
- 2010 **Forestry Student Representative**; Meet Mizzou Day (September 2010)
Forestry Outreach Co-Coordinator; South Farm Showcase (September 2010)

Media Coverage

- Mayer, M. 2021. “Let’s Get Together: How Invasion Ecology and Biological Control Can Improve Collaboration,” Entomology Today. <https://entomologytoday.org/2021/02/05/invasion-ecology-biological-control-improve-collaboration/>
- Burkhart, A. 2014. “Insect-ival puts bugs on display for all to see.” Athens Banner-Herald – Online Athens. <https://www.onlineathens.com/article/20140913/NEWS/309139971>

Graphic Design

- Figure design; Lucardi et al. (2020), PLoS ONE (<https://doi.org/10.1371/journal.pone.0230729>)
- Logo design; Arkansas Center for Biodiversity Collections (<https://www.facebook.com/AC4BC/>)
- Logo, flyer, and sticker designs; ACBC BioBlitz@Bearitage event (<https://www.inaturalist.org/projects/acbc-bioblitz-bearitage-2018>)
- Logo design; Natural History Collections Club Network (<https://thenhccn.wixsite.com/nhccn>)
- Logo design; STEAM Builders LEGO® Users Group (<http://steambuilders.org/>)

PROFESSIONAL DEVELOPMENT

Inclusion, Diversity, Equity, and Accessibility Professional Development

- **Safe Zone Training**; Colorado State University Pride Resource Center (April 2021)
- **Leading for Equity, Diversity, and Inclusion in Higher Education**; University of Michigan on Coursera (December 2020 – January 2021)
- **Anti-Racism Training**; Academics for Black Survival and Wellness (August 2020)
- **Mentor Training**; University of Minnesota Clinical and Translational Science Institute (August 2020)
 - Optimizing the Practice of Mentoring 101: For Research Mentors of Graduate Students, Fellows, and Early-Career Faculty
 - Optimizing the Practice of Mentoring 102: For Research Mentors of Undergrad. Students
 - Enhancing Motivation Using the CARES Mentoring Model
- **Introducing Feminist Frameworks Mastery Badge**; Colorado State University (May 2020)
 - Feminist Frameworks: Introduction to Identity Basics Trek Badge
 - Feminist Frameworks: Women Supporting Women Trek Badge
- **Developing Equity-Minded Mentors among Faculty and Researchers**; Center for the Integration of Research, Teaching, and Learning (CIRTL) Network (February 2020)

Pedagogy and Assessment Professional Development

- **New Faculty Teaching Academy Badge**; Mississippi State University Center for Teaching and Learning (August 2021)
- **Exploring Diversity in Implicit Leadership Theories and their Role in Inclusive Teaching**; Center for the Integration of Research, Teaching, and Learning (CIRTL) Network (July 2021)
- **CIRTL First Year Faculty Teaching Academy**; CIRTL Network and University of Florida Center for Teaching Excellence (July 2021)
- **The Inclusive STEM Teaching Project**; Boston University on edX (June – July 2021)
- **Saturday Seminar Series**; Best Teachers Institute (January – May 2021)
- **Trauma-Aware Teaching Workshop**; Karen Costa via 100 Faculty (January 2021)
- **Applying Evidenced-Based and Inclusive Practices to the Online Synchronous Classroom**; Center for the Integration of Research, Teaching, and Learning (CIRTL) Network (March 2020)
- **Advancing Learning Through Evidence-Based STEM Teaching**; CIRTL Network via Boston University on edX (January – March 2020)
- **An Introduction to Evidence-Based Undergraduate STEM Teaching**; CIRTL Network via Boston University on edX (June – August 2019)
- **Performing Educational Research Using Qualitative Research Methodologies** (SoTL Workshop); University of Georgia Center for Teaching and Learning (October 2014)

Other Workshops and Training Attended

- **Wood Science: Beyond Building**; West Virginia University on Coursera (July 2017)
- **Introduction to Systematic Review and Meta-Analysis**; Johns Hopkins University on Coursera Certificate (June 2017)
- **Strategic Planning for Your Herbarium: A Professional Development Opportunity brought to you by the Society of Herbarium Curators and iDigBio**; Botanical Society of America Conference (June 2017)
- **Using Digitized Herbarium Data in Research: Applications for Ecology, Phylogenetics, and Biogeography**; Botanical Society of America Conference (June 2017)
- **Grant Seeking & Persuasive Proposal Writing Success Workshop**; Arkansas State University (May 2017)

- **Mammal Specimen Preparation Workshop**; Arkansas Center for Biodiversity Collections, Arkansas State University (April 2017)
- **Social and Behavioral Responsible Conduct of Research**; Citi Program (March 2017)
- **Understanding the Federal R&D Budget**; American Association for the Advancement of Science Career Development Center (May 2016)
- **Presentation Boot Camp: Basic Training**; Arkansas State University (September 2015)
Two day intensive workshop taught by Dr. Rick Tankersley from Florida Institute of Technology
- **Plant Ecology, Invasion Ecology, and Genetics Reading Circle** (August 2014 – May 2015)
Led by Dr. Rima Lucardi from the USDA Forest Service
- **Science Communication Workshop**; Southeastern Ecology and Evolution Conference (SEEC; March 2015)
- **Prescribed Fire in the Forest Ecosystem**; University of Georgia Joseph W. Jones Ecological Research Center (March 2015); *Five day course on fire behavior, weather, safety, smoke management, socio-political aspects of prescribed fire, planning, and permits. We burned 110 acres and created a burn plan with the objective of improving non-game wildlife habitat.*
- **Entomological Comics and Their Importance in Education and Culture Workshop**; 62nd Entomological Society of America Meeting (November 2014)

Certification

Wilderness First Responder (SOLO program)