

Jennifer L. Pechal, PhD

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EDUCATION

PhD	TEXAS A&M UNIVERSITY	Entomology	2012
MS	TEXAS A&M UNIVERSITY	Entomology	2008
BS	SAM HOUSTON STATE UNIVERSITY	Biology	2006

PROFESSIONAL APPOINTMENTS

Jan 2015 — Present:	ASSISTANT PROFESSOR, FIXED TERM Department of Entomology, Michigan State University
Oct 2016 — August 2017:	ADJUNCT PROFESSOR Department of Statistics, Texas A&M University
Nov 2013 — Dec 2014:	RESEARCH ASSOCIATE Department of Entomology, Michigan State University
May 2012 — Oct 2013:	POSTDOCTORAL RESEARCH ASSOCIATE Department of Biology, University of Dayton

REFERRED PUBLICATIONS

(^ = corresponding or co-corresponding author; † = equal contribution; ** = graduate student mentee)

Google Scholar Information

Papers Submitted (Total to date = 2)

1. McCabe, RA, JP Receveur, JL Houtz, KL Thomas, ME Benbow, **JL Pechal**, and JR Wallace. The role of ectoparasitic louse flies in microbial dispersal by migratory raptors. *PLOS ONE*. (Submitted Jan 2020)
2. Cusser, S, **JL Pechal**, and NM Haddad. Carrion increases pollination service to non-native plants, especially in urban landscapes. *Urban Ecosystems*. (Submitted Dec 2019)

Papers Published or In Press (Total to date = 40)

1. Babcock**, NJ, **JL Pechal**, and ME Benbow. Adult blow fly (Diptera: Calliphoridae) community structure across urban-rural landscapes in Michigan, USA. *Journal of Medical Entomology (in press)*

2. Larson**, CE, **JL Pechal**, B Gerig, DT Chaloner, GA Lamberti, and ME Benbow. (2020) Coupled macroinvertebrate – microbial community response to a novel allochthonous resource subsidy. *Frontiers in Ecology and Evolution* 7:505. doi: 10.3389/fevo.2019.00505
3. Bump, JK, PS Barton, MJ Evans, CN Foster, **JL Pechal**, JK Bump, MM Quaggiotto, and ME Benbow (2019) Echoing the need to quantify carrion production. *Trends in Ecology & Evolution*. doi.org/10.1016/j.tree.2019.11.003. (*Response to Moleón et al. 2019*)
4. Kaszubinski**, SF, **JL Pechal**, CJ Schmidt, HR Jordan, ME Benbow, and MH Meek. Evaluating Bioinformatic Pipeline Performance for Forensic Microbiome Analysis. *Journal of Forensic Sciences*. 10.1111/1556-4029.14213 (*Early view*)
5. **Pechal, JL**[^], ME Benbow, AW Kamng’ona, A Safalaoh, K Masamba, and Jeremiah Kang’ombe. The need for alternative insect protein in Africa. *Annals of the Entomological Society of America*. saz046. doi.org/10.1093/aesa/saz046. **Invited.**
6. Barton, PS, MJ Evans, CN Foster, **JL Pechal**, JK Bump, MM Quaggiotto, and ME Benbow (2019) Out of sight, out of mind? Discovering the hidden importance of carrion biomass in ecosystems. *Trends in Ecology & Evolution*. doi.org/10.1016/j.tree.2019.06.001
7. Burcham**, ZM, **JL Pechal**, CJ Schmidt, JL Bose, JW Rosch, ME Benbow, and HR Jordan (2019) Total RNA Analysis of Bacterial Community Structural and Functional Shifts throughout Vertebrate Decomposition. *Journal of Forensic Sciences*. doi.org/10.1111/1556-4029.14083
8. **Pechal, JL**[†], JL Crippen, JA Cammack, JK Tomberlin, and ME Benbow[†]. (2019) Microbial Communities of Salmon Resource Subsidies and Associated Necrophagous Consumers During Decomposition: Potential of Cross-Ecosystem Microbial Dispersal. *Food Webs*. e00114. doi.org/10.1016/j.fooweb.2019.e00114 **Invited.**
9. Burcham**, ZM, **JL Pechal**, CJ Schmidt, JL Bose, JW Rosch, ME Benbow, and HR Jordan (2019) Bacterial Community Succession, Transmigration, and Differential Gene Transcription in a Controlled Vertebrate Decomposition Model. *Frontiers in Microbiology*. 10:745. doi: 10.3389/fmicb.2019.00745
10. Zhang**, Y, **JL Pechal**[^], CJ Schmidt, HR Jordan, WW Wang, ME Benbow[^], SH Sze[^], and AM Tarone[^] (2019) Machine learning performance in a microbial molecular autopsy context: A cross-sectional postmortem human population study. *PLOS ONE*. 14(4): e0213829. doi.org/10.1371/journal.pone.0213829
11. Burcham**, ZM, CJ Schmidt, **JL Pechal**, CP Brooks, JW Rosch, ME Benbow, and HR Jordan (2019) High Frequency Detection of Critical Antibiotic Resistance Genes through Routine Microbiome Surveillance. *PLOS ONE*. doi.org/10.1371/journal.pone.0213280
12. Pearson, AL, A Rzotkiewicz, **JL Pechal**, CJ Schmidt, HR Jordan, A Zwickle, and ME Benbow (2019) The human postmortem microbiome as an indicator of urban blight and green remediation. *Annals of the Association of American Geographers*. doi.org/10.1080/24694452.2018.1519407
13. Benbow, ME, PS Barton, MD Ulyshen, JC Beasley, TL DeVault, MS Strickland, JK Tomberlin, HR Jordan, and **JL Pechal** (2018) The Necrobiome: A Unifying Framework for Understanding Decomposer Community Structure and Function. *Ecological Monographs*. 89(1): e01331. doi:10.1002/ecm.1331
14. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2018) A Large-Scale Survey of the Postmortem Human Microbiome, and its Potential to Provide Insight into the Living Health Condition. *Scientific Reports*. 8(1): 5724. doi:10.1038/s41598-018-23989-w ***TOP 100 READ MICROBIOLOGY PAPERS IN 2018***

15. Receveur**, J, **JL Pechal**, ME Benbow, G Donato, T Rainey, and JR Wallace (2018) Larvicidal treatment impacts the internal microbiome of mosquitoes in hurricane created larval habitat. *Microbial Ecology*. doi:10.1007/s00248-018-1175-3
16. Vizza, C, **JL Pechal**, ME Benbow, JM Lang, DT Chaloner, SE Jones, and GA Lamberti (2018) Nitrate amendment reduces biofilm biomass and shifts microbial communities in remote, oligotrophic ponds. *Freshwater Science*. 37(2): 251-263
17. Singh, B, KJ Minick, MS Strickland, KG Wickings, TL Crippen, AM Tarone, ME Benbow, N Sufrin, JK Tomberlin, and **JL Pechal** (2018) Temporal and Spatial Impact of Human Cadaver Decomposition on Soil Bacterial and Arthropod Community Structure and Function. *Frontiers in Microbiology*. 8: 2616.
18. Moore, HE, **JL Pechal**, ME Benbow, and FP Drijfhout (2017) The potential use of cuticular hydrocarbons and multivariate analysis to age empty puparial cases of *Calliphora vicina* and *Lucilia sericata*. *Scientific Reports* 16; 7(1): 1933.
19. Weatherbee**, CR, **JL Pechal**, T Stamper, and ME Benbow (2017) Post-Colonization Interval Estimates Using Multi-Species Calliphoridae Larval Masses and Spatially Distinct Temperature Data Sets: A Case Study. *Insects*. 8 (40): 1-17.
20. Barton, PS, MJ Evans, **JL Pechal**, and ME Benbow (2017) Necrophilous insect dynamics at small vertebrate carrion in a temperate eucalypt woodland. *Journal of Medical Entomology*. 54(4): 964–973.
21. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2017) Frozen: Thawing and Its Effect on the Postmortem Microbiome in Two Pediatric Cases. *Journal of Forensic Sciences*. 62(5): 1399-1405.
22. Weatherbee**, CR, **JL Pechal**, and ME Benbow (2017) The Dynamic Maggot Mass Microbiome. *Annals of the Entomological Society of America*. 110(1): 45-53. *Invited*.
23. Burcham**, ZM, JA Hood, **JL Pechal**, KL Krausz, JL Bose, CJ Schmidt, ME Benbow, and HR Jordan (2016) Fluorescently Labeled Bacteria Provide Insight on Post-mortem Microbial Transmigration. *Forensic Science International*. 264: 63–69.
24. Lang, JM, R Erb, **JL Pechal**, JR Wallace, RW McEwan, and ME Benbow (2016) Microbial Biofilm Community Variation in Flowing Habitats: Potential Utility as Bioindicators of Postmortem Submersion Intervals. *Microorganisms*. 4(1): 1-17.
25. Finley, SJ†, **JL Pechal†**, ME Benbow, BK Robertson, and GT Javan (2016) Microbial signatures of cadaver gravesoil across decomposition. *Microbial Ecology*. 71(3): 524-529.
26. **Pechal, JL**^, and ME Benbow (2016) Microbial ecology of the salmon necrobiome: Evidence salmon carrion decomposition influences aquatic and terrestrial insect microbiomes. *Environmental Microbiology*. 18(5): 1511–1522.
27. Tomberlin, JK, A van Huis, ME Benbow, HR Jordan, D Astuti, D Azzollini, I Banks, V Bava, C Borgemeister, JA Cammack, RS Chapkin, H Čičková, TL Crippen, A Day, M Dicke, D Drew, C Emhart, M Epstein, M Finke, CH Fischer, D Gatlin, NT Grabowski, R Han, C He, L Heckman, A Hubert, J Joseph, SK Khanal, JF Kleinfinger, G Klein, C Leach, Y Liu, GL Newton, R Olivier, **JL Pechal**, CJ Picard, S Rojo, A Roncarati, C Sheppard, AM Tarone, B Verstappen, A Vickerson, H Yang, A Yen, Z Yu, J Zhang, W Zheng, and L Zheng (2015) Protecting the Environment Through Insect Farming as a Means to Produce Protein for Use as Livestock, Poultry, and Aquaculture Feed. *Journal of Insects as Food and Feed*. 1(4): 307-309.
28. Benbow, ME, and **JL Pechal** (2015) Microbial Interactions of the Necrobiome: Basic Research and Forensic Applications. *Microbiologist*. 16 (3): 26-29.

29. Benbow, ME, **JL Pechal**, JM Lang, R Erb, and RJ Wallace (2015) The potential of high-throughput metagenomic sequencing of aquatic bacterial communities to estimate the postmortem submersion interval. *Journal of Forensic Sciences*. 60(6): 1500–1510.
30. **Pechal, JL**[^], ME Benbow, JK Tomberlin, TL Crippen, AM Tarone, B Singh, and PA Lenhart (2015) Field documentation of unusual postmortem wound infliction on human remains by arthropods. *Journal of Medical Entomology*. 52(1): 105–108.
31. **Pechal, JL**[^], HE Moore, F Drijfhout, and ME Benbow (2014) Hydrocarbon profiles throughout adult Calliphoridae aging: A promising tool for forensic entomology *Forensic Science International*. 245: 65–71.
32. **Pechal, JL**[^], ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2014) Delayed insect access alters carrion decomposition and necrophagous insect community assembly. *Ecosphere* 5(4): art45.
33. **Pechal, JL**[^], TL Crippen, ME Benbow, AM Tarone, S Dowd, and JK Tomberlin (2014) The potential use of bacterial community succession in forensics as described by high throughput metagenomic sequencing. *International Journal of Legal Medicine* 128(1): 193–205. ***ONE OF THE MOST FREQUENTLY DOWNLOADED PAPERS IN 2015 PUBLISHED IN THIS JOURNAL***
34. **Pechal, JL**[^], TL Crippen, AM Tarone, AJ Lewis, JK Tomberlin, and ME Benbow (2013) Microbial Community Functional Change During Vertebrate Carrion Decomposition. *PLOS ONE* 8(11): e79035. *** ONE OF THE TOP 25% MOST CITED PLOS ONE ARTICLES***
35. Benbow, ME, AJ Lewis, JK Tomberlin, and **JL Pechal** (2013) Seasonal Necrophagous Insect Community Assembly During Vertebrate Carrion Decomposition. *Journal of Medical Entomology* 50(2): 440–450.
36. Tomberlin, JK, TL Crippen, AM Tarone, B Singh, K Adams, YH s, ME Benbow, M Flores, M Longnecker, **JL Pechal**, DH Russell, RC Beier, and TK Wood (2012) Interkingdom responses of flies to bacteria mediated by fly physiology and bacterial quorum sensing. *Animal Behaviour* 84: 1449–1456.
37. **Pechal, JL**[^], ME Benbow, and JK Tomberlin (2011) *Merope tuber* Newman (Mecoptera: Meropidae) collected in association with carrion in Greene County, Ohio, USA: an infrequent collection of an elusive species. *The American Midland Naturalist* 166(2): 453–457.
38. Sanford, MR, **JL Pechal**, and JK Tomberlin (2011) Rehydration of forensically important larval Diptera specimens. *Journal of Medical Entomology* 48(1): 118–125.
39. **Pechal, JL**[^], JW Austin, AL Szalanski, RE Gold, and JK Tomberlin (2008) Genetic analysis of *Periplaneta americana* (Blattodea: Blattidae) in central Texas using the ITS1 region. *Journal of Agricultural and Urban Entomology* 25(3): 179–191.
40. **Pechal, JL**[^], JW Austin, RE Gold, and JK Tomberlin (2007) Epidemiology and spatial relationships of bacteria associated with *Periplaneta Americana* (Blattodea: Blattidae) in central Texas. *Journal of Agricultural and Urban Entomology* 24 (4): 205–216.

OTHER PUBLICATIONS

1. Benbow, ME, PS Barton, MD Ulyshen, JC Beasley, TL DeVault, MS Strickland, JK Tomberlin, HR Jordan, and **JL Pechal**. 2019. The Necrobiome: The Community of Organisms Associated with Death and Decomposition in Ecosystems. *Bulletin of the Ecological Society of America*. 100(1): e01454. doi.org/10.1002/bes2.1454

BOOK CHAPTERS

Invited Book Chapters (Total to date = 9)

1. Benbow, ME and **JL Pechal** (expected 2020). Forensic Entomology and the Microbiome. In: ***Entomological Evidence: The Utility of Arthropods in Legal Investigations***, 3rd edition. J Byrd and JK Tomberlin (Eds). CRC Press, Boca Raton, FL.
2. Benbow, ME, **JL Pechal**, JK Tomberlin, and HR Jordan (2018) Interkingdom interactions in disease ecology. In: ***Advances in Environmental Microbiology, Volume 5: Connections between ecology and infectious disease***. CJ Hurst (Ed). Springer International Publishing, AG, Switzerland, pp. 3-38.
3. **Pechal, JL**, ME Benbow, and TL Crippen (2017) Sampling Methods and Data Generation. In: ***Forensic Microbiology***. DO Carter, JK Tomberlin, ME Benbow, and JL Metcalf (Eds). Wiley-Blackwell, Hoboken, NJ, pp. 109-132.
4. Benbow, ME, and **JL Pechal** (2017) Approaches and Considerations for Forensic Microbiology Decomposition Research. In: ***Forensic Microbiology***. DO Carter, JK Tomberlin, ME Benbow, and JL Metcalf (Eds). Wiley-Blackwell, Hoboken, NJ, pp. 92-108.
5. Benbow, ME, **JL Pechal**, and AK Ward (2017) Heterotrophic bacteria production and microbial community assessment. In: ***Methods in Stream Ecology, 3rd Edition, Vol. 1***. FR Hauer and GA Lamberti (Eds). Academic Press, Burlington, MA, pp. 161-176
6. **Pechal, JL** and ME Benbow (2015) Community Ecology. In: ***Forensic Entomology: International Dimensions and Frontiers***. JK Tomberlin and ME Benbow (Eds). CRC Press, Boca Raton, FL, pp. 347-360.
7. Benbow, ME, **JL Pechal**, and RM Mohr (2015) Community and Landscape Ecology of Carrion. In: ***Carrion Ecology, Evolution and Their Applications***. ME Benbow, JK Tomberlin and AM Tarone (Eds). CRC Press, Boca Raton, FL, pp. 151-186.
8. Crippen, TL, ME Benbow, and **JL Pechal** (2015) Microbial Interactions during Carrion Decomposition. In: ***Carrion Ecology, Evolution and Their Applications***. ME Benbow, JK Tomberlin and AM Tarone (Eds). CRC Press, Boca Raton, FL, pp. 31-64.
9. Benbow, ME, RW Merritt, and **JL Pechal** (2013) Entomology. In: ***Wiley Encyclopedia of Forensic Science. A*** Jamieson and AA Moenssens (Eds). John Wiley, Chichester, England. pp. 1-14.

DISSERTATION AND THESIS

Pechal, JL (2012) Swine carrion as a model system for studying decomposition ecology: The importance of microbial and primary colonizer interactions. *PhD Dissertation*. Department of Entomology, Texas A&M University, College Station, TX. 217 pp.

Pechal, JL (2008) Intraspecific gene flow and vector competence among *Periplaneta americana* (Blattodea: Blatteridae) cockroaches in central Texas. *MS Thesis*. Department of Entomology, Texas A&M University, College Station, TX. 111 pp.

GRANTS

\$3,847,770 ADMINISTERED [\$ TOTAL AMOUNT (\$ MSU AMOUNT, IF APPLICABLE)]:

1. **The Michigan State University Alliance for African Partnership, 2020** — ME Benbow (multi-PI), **JL Pechal (multi-PI)**, J Kang'ombe (co-PI), K Masamba (co-PI), A Safalaoh (co-PI), A Kamng'ona (co-PI), and M. Jumbe (collaborator). *Insects as Alternative Feed in Malawi: Growing Black Soldier Fly Farms from Partnerships*. \$ 40,000 (\$40,000)
2. **USAID [Feed the Future Innovation Lab for Fish, RFA-FIL-19-000001], 2020** — **JL Pechal (PI)**, BT Omonona (host country PI), S Valle de Souza (co-PI), A Bennett (collaborator), ME Benbow (collaborator), OB Adedeji (collaborator), and Y Agbeja (collaborator). *No longer bugged by feed costs: Farming insects as sustainable and scalable aquaculture feedstock to improve catfish (Clariidae) producers' and consumers' livelihoods towards food security in Nigeria*. (Recommended for funding, expected formal acceptance 1 Feb 2020)\$400,000 (\$200,000)
3. **The Forensic Sciences Foundation, American Academy of Forensic Sciences (Lucas Research Grant), 2019** — SF Kaszubinski (PI), JR Receveur (co-PI), **JL Pechal (co-PI)**, and ME Benbow (co-PI). *Microbial Community Succession of Submerged Bones in an Aquatic Habitat*. \$5,300 (\$5,300)
4. **National Science Foundation [Ecology & Evolution of Infectious Diseases, NSF 16-592], Award Number: 1911457, 2018** — ME Benbow (PI), **JL Pechal (co-PI)**, HR Jordan (co-PI), M Sandel (co-PI), and JF Guégan (co-PI). *Novel weapon evolution in Mycobacterial pathogenesis, dispersal and ecological persistence* \$2,499,999 (\$1,253,608)
5. **The Forensic Sciences Foundation, American Academy of Forensic Sciences (Acorn Research Grant), 2018** — Wydra, BR (PI), ME Benbow (co-PI), JC Wankmiller (co-PI), and **JL Pechal (co-PI)**. *Necrophagous insect communities and how they associate with human decomposition at a new northern latitude outdoor forensic research facility*..... \$1,497 (\$1,497)
6. **The Michigan State University Alliance for African Partnership, 2017** — ME Benbow (multi-PI), **JL Pechal (multi-PI)**, J Kang'ombe (co-PI), K Masamba (co-PI), A Safalaoh (co-PI), A Kamng'ona (co-PI). *Farming Insects for Feed: Developing Partnerships for Sustainable Food security in Malawi*. \$ 50,000 (\$50,000)
7. **The Forensic Sciences Foundation, American Academy of Forensic Sciences (Lucas Research Grant), 2014** — **JL Pechal (PI)**, ME Benbow (co-PI), and CJ Schmidt (co-PI). *Prediction of the Postmortem Interval using Bacterial Communities Collected from Human Remains Discovered in a Major, Metropolitan City* \$ 4,974 (\$4,974)
8. **National Institute of Justice (Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes), 2014-DN-BX-K008, 2014** — HR Jordan (PI), ME Benbow (co-PI), **JL Pechal* (collaborator)**, and CJ Schmidt (collaborator). *Postmortem changes and translocation of bacterial community structure and function for use in criminal investigations*. \$ 843,000 (\$391,382)
***JL Pechal** was a major contributor in the application process, project design, development, implementation, and productivity, but was unable to be listed as co-PI due to University Regulations.
9. **American Academy of Forensic Sciences (Pathology/Biology Section Grant), 2012** — ME Benbow (PI), JR Wallace (co-PI), **JL Pechal (co-PI)**, and JM Lang (co-PI). *Aquatic microbial communities to estimate the postmortem submersion interval*..... \$ 3,000

I have submitted on average 11 applications per year in the past three years; a full list of pending and previous funding efforts is available upon request.

INVITED PROFESSIONAL PRESENTATIONS AT MEETINGS

(** notes graduate student presenter; * notes undergraduate student presenter; Total to date = 22)

Keynote Speaker (Total to date = 1)

1. **Pechal, JL**. (2019) Ensuring safety standards in farmed insects production systems. *The First African Conference on Edible Insects*, Harare, Zimbabwe 14-16 August. **International invitation.**

International Invitations (Total to date = 8)

1. **Pechal, JL**, J Kang'ombe, K Masamba, A Safalaoh, AW Kamng'ona, and ME Benbow (2018) Insects as an Alternative Protein in Malawi: Successes, Challenges, and Future Directions. *Next Generation of Food Security in Malawi Symposium*, Salima, Malawi, 18-19 July.
2. **Pechal, JL**, J Kang'ombe, K Masamba, A Safalaoh, AW Kamng'ona, and ME Benbow (2017) Farming Insects for Feed: Developing Partnerships for Sustainable Food security in Malawi. *Michigan State University Alliance for African Partnership Launch Event*, Dar es Salaam, Tanzania, 18-21 July. (*Poster*)
3. **Pechal, JL**, HR Jordan, Z Burcham, JK Tomberlin, MD McIntosh, E Anagonou, PLC Small, Y Barogui, G Sopoh, C Johnson, and ME Benbow (2015) Associations of Microbial Community Structure with *Mycobacterium ulcerans*. *World Health Organization – Global Buruli Health Initiative*, Geneva, Switzerland, 23-25 March.
4. **Pechal, JL**, Jordan, ME Benbow, PLC Small, JK Tomberlin, M. Sanders, E. Adogonou, Y Barogui, G Sopoh, C Johnson, and HR Jordan (2015) Detection of *Mycobacterium ulcerans* DNA on Human Skin. *World Health Organization – Global Buruli Health Initiative*, Geneva, Switzerland, 23-25 March.
5. Benbow, ME, HR Jordan, R Simmonds, PCL Small, and **JL Pechal** (2015) Microbial community ecology and the *Mycobacteria ulcerans* niche: Implications for a One Health Initiative approach to understanding transmission. *World Health Organization – Global Buruli Health Initiative*, Geneva, Switzerland, 23-25 March.
6. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone and JK Tomberlin (2014) Epinecrotic Microbial Communities and Carrion Decomposition: Applications in Waste Conversion. *2nd International Symposium on Organic Waste Bioconversion Mechanisms and Applications by Microbes and Insects*, Wuhan, China, 6-8 June.
7. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Decomposers of carrion: Structural and functional relationships of micro- and macroorganisms removing vertebrate carcasses from terrestrial ecosystems. *24th International Congress of Entomology Meeting*, Daegu, South Korea, 20-25 August. **International invitation.**
8. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone and JK Tomberlin (2011) Predicting decomposition time using microbial community level physiological profiles. *1st Forensic Entomology and its Implications in Medicine Annual Meeting*, Universiti Teknologi Mara, Kuala Lumpur, 5 July.

Domestic Invitations (Total to date = 13)

1. **Pechal, JL** (2019) Establishment of Early Postmortem Time Frames. *71st Annual Meeting of the American Academy of Forensic Science – Human Postmortem Microbiome Working Group Meeting*, Baltimore, MD, 17-23 February.

2. Larson^{••}, CE, CR Weatherbee, **JL Pechal**, B Gerig, DT Chaloner, G Lamberti, and ME Benbow (2018) Short and long-term Impacts of salmon carcass decomposition on stream microbial community structure: Allochthonous microbial subsidies to downstream food webs. *2018 Society for Freshwater Science Annual Meeting*. Detroit, MI, 20-24 May.
3. **Pechal, JL**, J Kang'ombe, K Masamba, A Safalaoh, AX Kamng'ona, and ME Benbow (2018) Developing alternative sources of protein in the developing world. *Insects as Food and Feed: How to save the planet and get protein too!* Indianapolis, IN, 22 March.
4. **Pechal, JL** and ME Benbow (2016) Resource subsidy influence on necrobiome networks. *25th International Congress of Entomology Meeting*, Orlando, FL, 25-30 September.
5. Benbow, ME, **JL Pechal**, P Barton, and CR Weatherbee (2016) The dynamic necrobiome: The interacting web of organisms associated with animal death and decomposition. *25th International Congress of Entomology Meeting*, Orlando, FL, 25-30 September.
6. Weatherbee, CR^{••}, **JL Pechal**, CE Larson, M Brewer, and ME Benbow (2016) Nested biodiversity: The importance of the insect microbiome in carrion food webs and implications for the forensic sciences. *25th International Congress of Entomology Meeting*, Orlando, FL, 25-30 September.
7. Larson, CE^{••}, **JL Pechal**, DG McCullough, and ME Benbow (2016) Legacy effects of emerald ash borer (*Agrilus planipennis*) on stream ecosystems. *25th International Congress of Entomology Meeting*, Orlando, FL, 25-30 September.
8. Benbow, ME, **JL Pechal**, HR Jordan, and CJ Schmidt (2016) The Human Postmortem Microbiome and Potential Forensic Applications. *Advances in Forensic Medicine & Pathology*, Ann Arbor, MI, 11-12 May.
9. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2015) Postmortem Microbiome and its Role in Health and Disease. *Michigan Association of Medical Examiners Annual Meeting*, Mt. Pleasant, MI, 23-25 October.
10. **Pechal, JL** (2015) Determining meaningful patterns from microbial communities for future grant proposals. *3rd Frontiers in Interkingdom Research Symposium*, East Lansing, MI, 4-6 March.
11. **Pechal, JL**, and ME Benbow (2013) The Calliphoridae Microbiome: An Ecoregion Perspective. *61th Entomological Society of America Annual Meeting*, Austin, TX, 10-13 November.
12. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Bacteria and blow fly interactions throughout vertebrate decomposition. *60th Entomological Society of America Annual Meeting*, Knoxville TN, 11-14 November.
13. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone and JK Tomberlin (2011) Community composition and assembly on decomposing vertebrate carcasses using pyrosequencing. *59th Entomological Society of America Annual Meeting*, Reno, NV, 13-16 November.

PROFESSIONAL PRESENTATION AT MEETINGS

(^{••} notes graduate student presenter; * notes undergraduate student presenter; Total to date = 89)

1. **Pechal, JL** and ME Benbow (2019) Insect-Microbiome Interactions, Importance, and Applications for Forensic Entomology. *16th European Association for Forensic Entomology Annual Meeting*, Bordeaux, France, 5-8 June.

2. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2019) International Associations of the Postmortem Microbiome. *71st Annual Meeting of the American Academy of Forensic Science*, Baltimore, MD, 17-23 February.
3. **Pechal, JL**, MW DuPont, JA Cammack, TL Crippen, HR Jordan, JK Tomberlin, and ME Benbow (2018) Does Indigenous Microorganism Management Impact the Calliphoridae Microbiome? *66th Entomological Society of America Annual Meeting*, Vancouver, BC, Canada 11-14 November.
4. Mesli, V, **JL Pechal**, HR Jordan, E Le Garff, V Hedouin, C. Campobasso, V Bugeli, S Pittner, F. Monticelli, CJ Schmidt, D Gosset, and ME Benbow (2018) International collaborative project of the geographic variations in the human postmortem microbiome [Oral communication in French] Projet collaboratif international d'étude des variations géographiques du microbiote cadavérique. *French Society of Legal Medicine Meeting*, Lyon, France, 11 June.
5. Benbow, ME, CR Weatherbee, J Receveur, and **JL Pechal** (2018) The postmortem microbiome associated with necrophagous insects during decomposition. *15th European Association for Forensic Entomology Annual Meeting*, Munich, Germany, 25-28 April.
6. **Pechal, JL**, CJ Schmidt, HR Jordan, MM Brewer, and ME Benbow (2018) The Ecology of the Human Postmortem Microbiome: Insights from a Large-Scale Study. *70th Annual Meeting of the American Academy of Forensic Science*, Seattle, WA, 19-24 February.
7. Benbow, ME, **JL Pechal**, HR Jordan, V Mesli, E LeGarff, VC Hedouin, CP Campobasso, V Bugelli, S Pittner, F Monticelli and CJ Schmidt (2018) A Global Partnership to Study Geographic Variation in the Human Postmortem Microbiome (HPMM). *70th Annual Meeting of the American Academy of Forensic Science*, Seattle, WA, 19-24 February.
8. Burcham^{••}, ZM, **JL Pechal**, JL Bose, ME Benbow, CJ Schmidt, and HR Jordan (2018) Fluorescent Bacteria in the Gut of Mice Carcasses Provides Insight on Postmortem Microbial Translocation. *70th Annual Meeting of the American Academy of Forensic Science*, Seattle, WA, 19-24 February.
9. Jordan, HR, ZM Burcham, **JL Pechal**, H Campbell, J Rosch, CJ Schmidt, and ME Benbow (2018) Autopsy Sampling to Uncover Human Resistome Diversity. *70th Annual Meeting of the American Academy of Forensic Science*, Seattle, WA, 19-24 February.
10. Shattuck, B, CV Isaac, SA Shahid, and **JL Pechal** (2018) Partially Skeletonized Remains Demonstrating Dragging Injuries, Internal Beveling of the Skull, and Tracheal Obstruction: A Team Approach. *70th Annual Meeting of the American Academy of Forensic Science*, Seattle, WA, 19-24 February.
11. **Pechal, JL**, CR Weatherbee, and ME Benbow (2017) Calliphoridae microbiome dynamics during decomposition. *65th Entomological Society of America Annual Meeting*, Denver, CO, 5-8 November.
12. Larson, CL^{••}, P Engelken, **JL Pechal**, DG McCullough, and ME Benbow (2017) Shedding light on emerald ash borer (*Agrilus planipennis*) indirect effects on aquatic ecosystem function. *65th Entomological Society of America Annual Meeting*, Denver, CO, 5-8 November.
13. Benbow, ME, **JL Pechal**, CL Larson, P Engelken, DG McCullough, R McEwan, and K Custer (2017) The ecological importance of resource subsidies on insect-microbe interactions in aquatic ecosystems: The dispersal of novel microbes and their genomes in insect communities. *65th Entomological Society of America Annual Meeting*, Denver, CO, 5-8 November.
14. Cammack, JA, **JL Pechal**, S Sweet, TL Crippen, A Knap, ME Benbow, and JK Tomberlin (2017) Insects and microbes drive VOC emission from decomposing carrion resources. *65th Entomological Society of America Annual Meeting*, Denver, CO, 5-8 November.

15. Thomas, K*, R McCabe, J Receveur, ME Benbow, **JL Pechal**, and JR Wallace (2017) The characterization of louse fly microbiomes on migrating raptors: Implications for avian pathogen dispersal. *65th Entomological Society of America Annual Meeting*, Denver, CO, 5-8 November.
16. Pearson AL, Rzotkiewicz A, **Pechal JL**, Zwickle A, Schmidt CJ, Jordan HR, and Benbow ME (2017) Relationships between neighborhood blight, urban green remediation and the postmortem human microbiome in Detroit, Michigan. *International Medical Geography Symposium*, Angers, France, 1-7 July.
17. **Pechal, JL**, CR Weatherbee, and ME Benbow (2017) Community assembly of carrion and calliphorid microbiomes. *14th European Association for Forensic Entomology Annual Meeting*, Treviso, Italy, 8-9 June.
18. Benbow, ME, CR Weatherbee, and **JL Pechal** (2017) Maggot masses and microbiomes: The interactions of insects and microbes in the necrobiome. *14th European Association for Forensic Entomology Annual Meeting*, Treviso, Italy, 8-9 June.
19. Thomas, K*, R McCabe, ME Benbow, **JL Pechal**, JP Receveur, and JR Wallace (2017) The characterization of louse fly micro biomes on migrating raptors: implications for avian pathogen dispersal. *Commonwealth of Pennsylvania University Biologists Conference*, 7-8 April. Kutztown, PA. (Poster) ***1st place Ecology/Evolutionary Biology***
20. Rzotkiewicz A^{••}, Pearson AL, **Pechal JL**, Zwickle A, Benbow ME, and Schmidt CJ (2017) Assessing the potential effect of urban decay and recovery on the residents of Detroit, Michigan: A novel utilization of the postmortem microbiome. *American Association of Geographers Conference*, Boston, Massachusetts, 5 – 9 April.
21. **Pechal, JL**, CJ Schmidt, HR Jordan, MM Brewer, and ME Benbow (2017) Postmortem Microbiome Changes During Thaw for Autopsy: Two Pediatric Case Studies. *69th Annual Meeting of the American Academy of Forensic Science*, New Orleans, LA, 13-18 February.
22. Benbow, ME, **JL Pechal**, HR Jordan, MM Brewer, and CJ Schmidt (2017) Coupled Microbiome and Insect Evidence in Death Investigation. *69th Annual Meeting of the American Academy of Forensic Science*, New Orleans, LA, 13-18 February.
23. Weatherbee^{••}, CR, **JL Pechal**, MM Brewer, TI Stamper, and ME Benbow (2017) Forensic Implications of Multi-Species Blow Fly Larval Masses and Their Associated Microbiomes. *69th Annual Meeting of the American Academy of Forensic Science*, New Orleans, LA, 13-18 February.
24. Burcham^{••}, ZM, **JL Pechal**, J Rosch, JL Bose, CJ. Schmidt, ME Benbow, and HR Jordan (2017) Internal Microbial Community Translocation Throughout Decomposition in a Controlled Vertebrate Model. *69th Annual Meeting of the American Academy of Forensic Science*, New Orleans, LA, 13-18 February.
25. Jordan, HR, ZM Burcham, JL Bose, **JL Pechal**; J Rosch, CJ Schmidt, and M. Eric Benbow (2017) Analyses of Necrobiome Structure and Function for Utility in Forensic Science. *69th Annual Meeting of the American Academy of Forensic Science*, New Orleans, LA, 13-18 February.
26. Receveur^{••}, J, G Donato, T Rainey, **JL Pechal**, ME Benbow, and JR Wallace (2017) ENSO related storm event impact on mosquitoes: ecological implications on larval habitats and microbial community response to control methods. *Michigan Mosquito Control Association Annual Meeting*, Port Huron, MI, 1-2 February.

See Appendix (A3) for additional presentations #27-89

Invited Seminars (Total to date = 19; 8 = international invitations)

1. **Pechal, JL** (2019) Insect-Microbiome Interactions: Decomposition Ecology for basic and applied research, *Mississippi State University*, Starkville, MS, 28 Oct.
2. **Pechal, JL** (2019) Novel weapon evolution in Mycobacterial pathogenesis, dispersal and ecological persistence, *University of Florida*, Vero Beach, FL, 9-10 May.
3. **Pechal, JL** (2019) Analytical approaches for meaningful interpretation of advanced sequencing technology data, *University of Turin*, Turin, Italy, 14 March. **International invitation.**
4. **Pechal, JL** (2018) Why study the postmortem microbiome? *Michigan State University Core Lab Seminar Series*, East Lansing, MI, 6 Nov.
5. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2018) Postmortem Microbiota Variability from a Large-Scale Survey. *Institute of Forensic Medicine and Forensic Neuropsychiatry, University of Salzburg*, Salzburg, Austria, 4 May. **International invitation.**
6. Benbow, ME, CJ Schmidt, HR Jordan, and **JL Pechal** (2018) The Human Postmortem Microbiome: Past, Present and future. *Institute of Forensic Medicine and Forensic Neuropsychiatry, University of Salzburg*, Salzburg, Austria, 4 May. **International invitation.**
7. **Pechal, JL** (2017) How to Collect Bugs on Bodies. *Department of Pathology, University of Michigan*, Ann Arbor, MI, 28 Sept.
8. **Pechal, JL** (2016) The Utility of Microorganisms in Forensic Investigations. *Department of Biological Sciences, Mississippi State University*, Starkville, MS, 11 Nov.
9. Benbow, ME, **JL Pechal**, CJ Schmidt, and HR Jordan (2016) The human postmortem microbiome: Potential applications in forensics and novel translations for investigating human health and disease. *College of Medicine, University of Malawi*, Blantyre, Malawi, 8 June. **International invitation.**
10. Benbow, ME, **JL Pechal**, CJ Schmidt, and HR Jordan (2016) The human postmortem microbiome: Potential applications in forensics. *Department of Forensics, Malawi University of Science and Technology*, Blantyre, Malawi, 7 July. **International invitation.**
11. Jordan, HR, **JL Pechal**, ZM Burcham, CJ Schmidt, and ME Benbow (2015) Utility of Microorganisms for forensics and health. *2015 Summer Conference of the Mississippi Coroner-Medical Examiner's Association*, Biloxi, MS, 2 July.
12. **Pechal, JL** (2015) Do forensic ecologists get a seven-year itch? Not for me! Future Forensic Scientists of MSU. *Future Forensic Scientists of MSU, Michigan State University*, East Lansing, MI, April 27.
13. Jordan, HR, **JL Pechal**, ME Benbow (2015) Utility of Carrion Microorganisms for Forensics and Health...and a bit from the living. *Anthropology and Middle Eastern Cultures Brown Bag Event, Mississippi State University*, Starkville, MS, April 9.
14. **Pechal, JL** (2014) Insect-bacteria interactions of the necrobiome. *Department of Entomology, Michigan State University*, East Lansing, MI, December 5.
15. **Pechal, JL**, TL Crippen, JR Wallace, AM Tarone and ME Benbow (2014) Microbial Diversity of Decomposing Vertebrate Carcasses in Aquatic and Terrestrial Habitats. Northwest Agricultural and Forestry University, Yangling, China, June 9. **International invitation.**
16. **Pechal, JL**, TL Crippen, JR Wallace, AM Tarone and ME Benbow (2014) Understanding Microbial Diversity of Decomposing Vertebrate Carcasses in Aquatic and Terrestrial Habitats: Applications to Waste

Conversion. *State key Laboratory of Agricultural Microbiology*, Wuhan, China, June 5. **International invitation.**

17. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone and JK Tomberlin (2014) Fly Influence on Epinecrotic Microbial Communities and Carrion Decomposition. *College of Agricultural and Biotechnology, Zhejiang University*, Hangzhou, China, June 3. **International invitation.**
18. **Pechal, JL** (2014) Forensic Entomology: What do microbes have to do with it? *John Jay College of Criminal Justice*, New York City, NY, February 11.
19. **Pechal, JL** (2013) How did I end up here? My path to a postdoc. *Beta Beta Beta Biology Honors Society Meeting, University of Dayton*, Dayton, OH, September 9.

HONORS AND AWARDS

May 2016	Entomological Society of America - Student Transition and Early Professionals Committee (STEP) Travel Award for International Congress of Entomology 2016.....	\$ 1,700
Nov 2011	Entomological Society of America - Medical, Urban and Veterinary Entomology section International Congress of Entomology Travel Award	\$ 5,000
Oct 2011	Texas A&M University - Ecology and Evolutionary Biology Graduate Student Travel Grant ...	\$ 450
Sept 2011	Texas A&M University - Office of Graduate Studies Graduate Student Research and Presentation Grant, Ph.D. level	\$ 400
April 2011	Texas A&M University - Student Enhancement Fund Endowment Scholarship	\$ 300
Jan 2011	Texas A&M University - Whole Systems Genomics Initiative for Improved Human, Animal, and Environmental Well-Being Graduate Traineeship	\$7,125
March 2009	Texas A&M University - Office of Graduate Studies Graduate Student Research and Presentation Grant, M.S. level	\$ 250

PROFESSIONAL EXPERIENCE & SERVICE

- **Departmental Service (1)** — Michigan State University, Dept of Entomology Marketing and Communications Committee (Oct 2018 - present)
- **Program Chair (1)** — North Central Branch Entomological Society of America meeting, Cincinnati, OH (March 2019)
- **Section Program Reviewer (2)** — 17th annual North American Forensic Entomology Association meeting, Indianapolis, IN (June 2019); 71st American Academy of Forensic Science Annual Meeting Pathology/Biology Section (February 2019)
- **Awards Committee (1)** — 71st American Academy of Forensic Science Annual Meeting Forensic Biologist Trainee Paper Committee of the Pathology/Biology Section (February 2019)

- **Conference Organizing Committee (2)** — 11th annual North American Forensic Entomology Association meeting, Dayton, OH (July 2013); 9th annual North American Forensic Entomology Associate meeting, College Station, TX (July 2011)
- **Conference Symposium Organizing Committee (2)** — 25th International Congress of Entomology Meeting, Orlando, FL (September 2016); 60th Entomological Society of America Annual Meeting, Austin, TX (November 2013)
- **Executive Committee Member (3)** — *Newsletter Chief Editor* for the North American Forensic Entomology Association Newsletter (October 2013-present); *Associate member representative* for the North American Forensic Entomology Association (July 2011-2013); *Newsletter Associate Editor* for the North American Forensic Entomology Association: Issue 6 (Aug 2010-July 2011)
- **Conference Session Moderator (6)** — 65th Entomological Society of America Annual Meeting, Denver, CO (November 2017); 66th American Academy of Forensic Science Annual Meeting, Seattle, WA (February 2014); 11th North American Forensic Entomology Association Annual Meeting, Dayton, OH (July 2013); 60th Entomological Society of America Annual Meeting, Knoxville, TN (November 2012); 64th American Academy of Forensic Science Annual Meeting, Atlanta, GA (February 2012); 9th North American Forensic Entomology Association Annual Meeting, College Station, TX (July 2011)
- **Conference Student Competition Judge (2)** — 2013 NE-4 Regional Beta Beta Beta Convention, Dayton, OH (March 2013); 10th North American Forensic Entomology Association Annual Meeting, Las Vegas, NV (July 2012)
- **Undergraduate Research Mentor (1)** — National Science Foundation's Research for Undergraduates: Expanding Scientific Investigation Through Entomology (NSF-REU EXCITE) program (Summer 2009)
- **Workshop Coordinator (1)** — Conducted weeklong forensic workshop at Texas A&M University for a group of high school students participating in the Youth Adventure Program (YAP) summer camp with an interest in forensic science, College Station, TX, (July 2010)

Journal Editorial Board Member

Ecological Processes (2016-2020)

Ad hoc Reviewer (Total to date = 59)

Acta Tropica (1)
Annals of the Entomological Society of America (1)
Applied and Environmental Microbiology (2)
Applied Microbiology and Biotechnology (1)
Ecohealth (1)
Ecological Entomology (1)
Entomologia Experimentalis et Applicata (2)
Entomological News (1)
Environmental Entomology (1)
FEMS Microbial Ecology (2)
Food Webs (1)
Forensic Science International (5)
Insects (1)

International Journal of Legal Medicine (1)
Journal of Archaeological Science: Reports (1)
Journal of Forensic Science (20)
Journal of Insect Conservation (1)
Journal of Insects as Feed and Food (1)
Journal of Medical Entomology (1)
Journal of Microbiological Methods (1)
Journal of Vector Ecology (1)
Molecular Ecology (2)
Northeastern Naturalist (1)
Oikos (1)
PeerJ (1)
PLoS Neglected Tropical Diseases (2)
PLoS ONE (4)
Scientific Reports (2)

PROFESSIONAL DEVELOPMENT

May 2017 Attended a workshop entitled “*Improvisation for Scientists to Strengthen Public Communication Skills*” as part of the Michigan State University Outreach and Engagement Program. (4 hours)

January 2015 Attended a workshop entitled “*Write Winning Grant Proposals Workshop*” as part of the Michigan State University Office of the Vice President for Research and Graduate Studies series. (8 hours)

November 2014 Attended a workshop entitled “*Structuring Successful Undergraduate Research Experiences*” as part of the Michigan State University Teaching Essentials for MSU STEM Faculty. (2 hours)

October 2014 Attended a workshop entitled “*What Ideas Should We Be Teaching, and How Can We Assess Whether Students Have Learned Them*” as part of the Michigan State University Teaching Essentials for MSU STEM Faculty. (2 hours)

Professional Association Memberships

2019 – Present American Academy of Forensic Sciences – *Member*
2016 – 2019 American Academy of Forensic Sciences – *Associate Member*
2007 – Present Entomological Society of America
2014 – 2016 Society for Freshwater Science
2012 – Present European Association of Forensic Entomology
2010 – 2011 Ecological Society of America
2007 – 2018 North American Forensic Entomology Association
2006 – 2012 Entomology Graduate Student Organization, Texas A&M University

GRADUATE STUDENT COMMITTEES

([✶]notes National Science Foundation Graduate Research Fellowship; * notes US Veteran)

COMPLETED

Masters of Science (MS)

1. Amanda Rzotkiewicz (Spring 2017 – Fall 2018), Geography, Michigan State University: "*Exploring Neighborhood Pathways to Health: A Synthesis of Existing Methods and New Directions*"
2. Nicholas Babcock* (Fall 2016 – Fall 2018), Entomology, Michigan State University: "*Adult Blow Fly (Diptera: Calliphoridae) Community Structure Across Urban-Rural Landscape Change in Michigan*"
3. Courtney L. Weatherbee (Spring 2015 – Fall 2016), Entomology, Michigan State University: "*Ecology of Calliphoridae larval masses and postmortem colonization estimate variability*"
4. Le Zheng (2016), Statistics, Texas A&M University: "*Statistical Prediction for Post-Mortem Interval based on Microbial Community Function and Structure from Pig Carcasses*"
5. Alyssa Bagdley (Summer 2016), Forensic Science, Michigan State University: "*Influences of Time, Temperature, and Quantity on Next-Generation 16S Bacterial DNA Sequencing for Forensic Soil Evidence Analysis*"

IN PROGRESS

Doctorate of Philosophy (PhD)

1. Courtney E. Larson[✶] (Fall 2014 – Present), Entomology & Ecology, Evolutionary Biology, and Behavior, Michigan State University: "*Diverse Allochthonous Resource Quality Effects on Headwater Stream Communities Through Insect-Microbe Interactions*"

Masters of Science (MS)

1. Sierra Kaszubinski (Spring 2018 – Present), Integrated Biology, Michigan State University: "*TBD*"

Visiting Scholar Mentor

([◆]notes visiting international student)

<u>Name</u>	<u>Institution, Year(s); Home Institution, if applicable</u>
Dr. Deborah Ruth Amulen [◆]	Michigan State University, Aug 2019 – Aug 2020; Makerere University (Kampala, Uganda) *2019 Michigan State University Alliance for African Partnership (AAP) African Futures - Early Career Research Fellow Program (Est. \$70,000 Fellowship)

Graduate Student Research Mentor

(♦notes visiting international student)

<u>Name</u>	<u>Institution, Year(s); Home Institution, if applicable</u>
Juanjuan Guo ♦	Michigan State University, Fall 2016 – Fall 2017; Central South University (Changsha, Hunan, China)
Christine Kwiatkowski	Michigan State University, Summer 2017
Diego Oliveira ♦	Michigan State University, Summer 2017; Federal University of Pernambuco (Recife, Brazil)
Alberto Doretto ♦	Michigan State University, Fall 2017; Università degli Studi di Torino (Turin, Italy)

Undergraduate Research Assistants Mentor

(♦notes visiting international student)

<u>Name</u>	<u>Institution, Year(s)</u>
Arezu Forouzandeh	Michigan State University, Fall 2019 – Present
Katelyn Smiles	Michigan State University, Fall 2018 – Present
Benjamin Bejcke	Michigan State University, Fall 2016 – Spring 2017
Katie Kierczynski	Michigan State University, Fall 2016 – Spring 2017
Hadley O'Brien	Michigan State University, Summer 2016 – Fall 2017
Andre Yoshikawa ♦	Michigan State University, Summer 2016 (<i>Science Without Borders - Ciência sem fronteiras</i>)
Zack Swix	Michigan State University, Summer 2016 – Spring 2017
Sydney Manning	Michigan State University, Summer 2016
Maiara Rodrigues ♦	Michigan State University, Summer 2015 (<i>Science Without Borders - Ciência sem fronteiras</i>)
McKinley Brewer	Michigan State University, Fall 2014 – Spring 2018
Lucy Schroeder	Michigan State University, Fall 2014
Sadie Boyd	Michigan State University, Spring 2014
Olivia Hart	University of Dayton, 2013
James Alfieri	University of Dayton, 2012 – 2013
Alexandra Calteaux	University of Dayton, 2012 – 2013
Kaitlin Fochesato	University of Dayton, 2012 – 2013
Nichole Henger	University of Dayton, 2012 – 2013
Morgan McHugh	University of Dayton, 2012 – 2013
Lauren Shewhart	University of Dayton, 2012 – 2013
Amy Whitaker	University of Dayton, 2012 – 2013
Erica Watson	University of Dayton, 2012 – 2013
Alexandra Wright	University of Dayton, 2012 – 2013
Joe Roeckner	University of Dayton, Fall 2012
Mary Timko	University of Dayton, Fall 2012
Jill Ross	Texas A&M University, Summer 2009 (<i>National Science Foundation – Research Undergraduate Experience</i>)
Alda Son	Texas A&M University, Summer 2009

Undergraduate Research Thesis Mentor

1. Receveur J, Donato G, Rainey T, **Pechal JL**, Benbow ME, Wallace J (2016) *ENSO related storm event impact on mosquitoes: Ecological implications on larval habitats and microbial community response to control methods*. University of Millersville, Millersville, PA.

TEACHING*PRIMARY INSTRUCTOR AT MICHIGAN STATE UNIVERSITY*

Spring 2020	Insects and Microbiomes (ENT 812) – <i>co-teaching with Dr. M. Eric Benbow</i>	6 students
Fall 2019	Introduction to Criminal Justice (CJ 210)	161 students
Spring 2019	Scientific Writing (ENT 812) – <i>co-taught with Dr. Zsofia Szendrei</i>	6 students
Fall 2018	Forensic Entomology (ENT 401) – <i>co-taught with Dr. M. Eric Benbow</i>	10 students
Spring 2018	Scientific Writing (ENT 812) – <i>co-taught with Dr. Zsofia Szendrei</i>	11 students
Spring 2017	Forensic Entomology (ENT 812) – <i>co-taught with Dr. M. Eric Benbow</i>	5 students
Spring 2017	Scientific Writing (ENT 812) – <i>co-taught with Dr. Zsofia Szendrei</i>	8 students
Spring 2016	Forensic Applications of the Necrobiome (ENT 812) – <i>co-taught with Dr. M. Eric Benbow</i>	12 students

GRADUATE TEACHING ASSISTANT AT TEXAS A&M UNIVERSITY

Spring 2012	Veterinary Entomology (ENTO 208) – 3 sections of laboratory	60 students
Fall 2011	Veterinary Entomology (ENTO 208) – 3 sections of laboratory	62 students
Fall 2011	General Entomology (ENTO 201) – 2 sections of laboratory	42 students
Spring 2011	Veterinary Entomology (ENTO 208) – 3 sections of laboratory <i>including the only honors section</i>	64 students
Fall 2010	Veterinary Entomology (ENTO 208) – 3 sections of laboratory	72 students
Spring 2010	Public Health Entomology (ENTO 289)	79 students
Fall 2009	Forensic and Investigative Sciences (FIVS 205)	143 students
Spring 2009	Insects in Human Society (ENTO 322)	152 students

Spring 2009	Forensic entomology (ENTO 432) – 1 section of laboratory	14 students
Fall 2007	Medical Entomology (ENTO 423) – 1 section of laboratory	17 students
Summer I 2007	Medical Entomology (ENTO 423) – 1 section of laboratory	13 students
Spring 2007	Insects in Human Society (ENTO 322)	~ 150 students

Invited Guest Lectures

November 2019	Aquatic Entomology (ENT 422), Michigan State University	18 students
November 2017	Aquatic Entomology (ENT 422), Michigan State University	22 students
February 2017	Osteology and Forensic Anthropology (ANP441), Michigan State University	52 students
November 2015	Aquatic Entomology (ENT 422) – 2 lectures, Michigan State University	18 students
October 2014	Insects, Disease and Natural Resources (ENT 812), Michigan State University	7 students
September 2013	Disease Ecology (BIO 465) – 2 lectures, University of Dayton	~ 30 students
March 2013	Introduction to Ecology and Evolution (BIO 152) – 2 lectures, University of Dayton	~ 30 students
February 2013	Introduction to Ecology and Evolution (BIO 152), University of Dayton	~ 30 students
October 2012	Disease Ecology (BIO 465), University of Dayton	~ 30 students
September 2012	Forensic Entomology, The Ohio State University	~ 45 students
March 2010	Public Health Entomology (ENTO 289), Texas A&M University	79 students
Fall 2009	Introduction to Forensic and Investigative Sciences (FIVS 205) – 4 lectures,	143 students

Texas A&M University

April 2009

Forensic Entomology (ENTO 432),
Texas A&M University

~ 45 students

Invited Workshop Speaker/Leader (Total to date =21)

1. **Pechal, JL** and ME Benbow (2018). *Forensic Entomology for Death Investigation*. Northern Michigan University, Marquette, MI, 16 May.
2. **Pechal, JL** (2018). *The use of arthropods and microbes in death investigation*. Advances in Forensic Medicine & Pathology, Ann Arbor, MI, 9-10 May.
3. Tomberlin, JK, HR Jordan, S Bankson, ME Benbow, D Botluck, JA Cammack, S Domitrovich, RT Kennedy, PAW King, JJ Maltese, **JL Pechal**, HM Pitluck, L Sare, and DE Shelton (2017) *Viewing Research Through Different Lenses: How to Achieve Success in Court*. 68th Annual Meeting of the American Academy of Forensic Science. New Orleans, LA, 13-18 February.
4. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2016) *Human Postmortem Microbiomes: The Hows, Wheres and Whys*. Advances in Forensic Medicine & Pathology, Ann Arbor, MI, 11-12 May.
5. **Pechal, JL** and ME Benbow (2015) Bioinformatic Data Analysis and Multivariate Statistical Interpretation. **Invited Speaker and Session Leader**. In: *Hands-On Evaluation of the Thanatomicrobiome and Epinecrotic Communities* 67th Annual Meeting of the American Academy of Forensic Science. Orlando, FL, February 16-21.
6. Javan, GT, SJ Finley, I Can, **Pechal, JL** (2015) DNA Extraction from Cadaver Soil Samples (Hands-on). **Invited Speaker and Session Leader**. In: *Hands-On Evaluation of the Thanatomicrobiome and Epinecrotic Communities* 67th Annual Meeting of the American Academy of Forensic Science. Orlando, FL, February 16-21.

See Appendix (A4) for additional invited workshop speaker/leader #7-21

Lecture/Laboratory/Workshop Manuals & Supplemental Teaching Materials

Pechal, JL, ME Benbow (2012) *An Introductory Manual for Multivariate Statistical Analysis of Community Data Using PCORD*. Manual for North American Forensic Entomology Association Workshop. Las Vegas, NV, 17 July 2012.

SCIENTIFIC OUTREACH & COMMUNICATION EVENTS

Total Events to date = 29 (K-12 Events = 23)

- June 2019 Presented to the CSI: Crime Scene Investigation - Youth Forensic Science Program at Michigan State University about Forensic Entomology (*Grades: K-12 event*).
- February 2019 Skype a Scientist: Talked to 7th graders in Colorado about forensic entomology and decomposition (*Grades: K-12 event*).

- February 2019 Skype a Scientist: Talked to 11th/12th graders in North Carolina about forensic entomology and decomposition (*Grades: K-12 event*).
- December 2017 Skype a Scientist: Talked to 3rd graders in Texas about forensic entomology and decomposition (*Grades: K-12 event*).
- July 2017 Presented to the CSI: Crime Scene Investigation - Youth Forensic Science Program at Michigan State University about Forensic Entomology (*Grades: K-12 event*).
- October 2016 Invited seminar speaker at the American Fifth Distillery's Orations and Libations public seminar series in Lansing, MI.
- April 2016 Volunteer outreach to the community with maggot art at Michigan State University Science Festival (*Grades: K-12 event*).
- October 2015 Volunteer outreach to the community with maggot art at the Cranbrook Institute of Science – CIS After Dark in Bloomfield Hills, MI.
- June 2015 Presented to the CSI: Crime Scene Investigation - Youth Forensic Science Program at Michigan State University about Forensic Entomology (*Grades: K-12 event*).
- April 2015 Volunteer outreach to the community with maggot art at Michigan State University Science Festival (*Grades: K-12 event*).

See Appendix (A5) for additional outreach events

Media Outreach (Total to date = 17)

1. Nov 2019 (*released*): Phone interview for MIT's *Undark Magazine* with Rene Ebersole – “Down on the Body Farm: Unlocking the Forensic Secrets of Decaying Corpses” (<https://undark.org/2019/11/11/how-microbes-could-aid-forensic-detectives/>)
2. October 2019 (*released*): In-person interview for a Michigan State University's *The Engaged Scholar Magazine*. (<https://engagedscholar.msu.edu/magazine/volume14/default.aspx>).
3. October 2018 (*released*): Phone interview for *National Geographic* with Carrie Arnold – “Beetle juice turns corpses into cozy nurseries—here's how” (<https://www.nationalgeographic.com/science/2018/10/news-burying-beetle-nursery-bacteria-fungus-decomposition/>)
4. September 2019: Phone interview for *Feed Strategy* (magazine) with Emma Penrod.
5. August 2019: Interview via email for Mississippi State University's with Emma Braswell.
6. August 2018 (*released*): Phone interview for *The New York Times* with Steph Yin – “Hundreds of Reindeer Died by Lightning. Their Carcasses Became a Laboratory” (<https://www.nytimes.com/2018/08/17/science/reindeer-carcasses-lightning.html>)
7. April 2018 (*released*): Aired radio interview for *Michigan Radio's Stateside* with Cynthia Canty – “What can microbiomes tell us about death? New MSU study explores the life of a corpse.”

(<http://michiganradio.org/post/what-can-microbiomes-tell-us-about-death-new-msu-study-explores-life-corpse>)

8. April 2018 (*released*): In-person interview for a Michigan State University Today news release – “Bugs, Microbes and death can inform the living.” (<https://msutoday.msu.edu/news/2018/bugs-microbes-and-death-can-inform-the-living/>)
9. March 2018 (*released*): Live national radio interview for *Public Radio’s Science Friday* with Ira Flatow – “After You Die, Your ‘Necrobiome’ Lives On.” (<https://www.sciencefriday.com/segments/your-necrobiome-lives-on-after-you-die/>)
10. Jan 2018 (*released*): Phone interview for *PNAS Front Matter* with Dr. Carolyn Beans – “Can microbes keep time for forensic investigators?” (<http://www.pnas.org/cgi/doi/10.1073/pnas.1718156114>)
11. May 2016 (*released*): Phone interview for *BioTechniques* (<http://www.biotechniques.com/news/Microbes-in-Decomposing-Corpses/biotechniques-364430.html - .Vzs896ugTB9>)
12. January 2016 (*released*): In-person interview for *The New York Times Magazine* with Peter Andrey Smith – “The Living Dead.” (<http://nyti.ms/1ndQNEG>)
13. February 2015: Phone interview for the *New Scientists*
14. January 2015 (*released*): Phone interview for the *News from Science Magazine (AAAS)* – “Carnivorous Duo Feed on Human Remains” (<http://news.sciencemag.org/plants-animals/2015/01/crickets-and-pillbugs-feed-human-remains>) DOI: 10.1126/science.aaa6368
15. December 2014 (*released*): In-person interview for the *Lansing State Journal* – “MSU Bug House offers creepy crawly fun over the holidays” (<http://www.lansingstatejournal.com/story/news/local/2014/12/27/msu-bug-house-offers-creepy-crawly-fun-holidays/20950729/>)
16. November 2013 (*released*): Phone interview for *Science News* – “Getting to know the real living dead” (<https://www.sciencenews.org/blog/gory-details/getting-know-real-living-dead>)

FORENSIC ENTOMOLOGY CASE WORK (*Total to date = 14*)

- | | |
|----------------|---|
| November 2017 | Identified arthropod evidence and constructed a minimum postmortem interval estimate range with Dr. M. Eric Benbow for a death scene investigation in Kalamazoo County, MI. |
| September 2014 | Identified arthropod evidence and constructed a minimum postmortem interval estimate range with Dr. M. Eric Benbow for a death scene investigation in Ingham County, MI. |
| December 2013 | Identified arthropod evidence and constructed a minimum postmortem interval estimate range with Dr. M. Eric Benbow for a death scene investigation in Summit County, OH.
<i>*Testified as expert witness in February 2015.</i> |
| October 2013 | Identified arthropod evidence and constructed a minimum postmortem interval estimate range with Dr. M. Eric Benbow for a death scene investigation in Summit County, OH. |
| March 2012 | Assisted Dr. Jeff Tomberlin in the identification of insects for a death scene investigation in Travis County, Texas. |

October 2010 Assisted Dr. Jeff Tomberlin in identification of insects for a death scene investigation in Bexar County, Texas.

September 2010 Assisted Dr. Jeff Tomberlin in a honey bee literature review for a death scene investigation in Texas.

April 2010 Assisted Dr. Jeff Tomberlin with reviewing a case from Maricopa County, Arizona.

February 2010 Assisted Dr. Jeff Tomberlin with collection, identification and development data for a death scene investigation in Tarrant County, Texas.

July 2009 Assisted Dr. Jeff Tomberlin in identification of insects for a death scene investigation in Harris County, Texas.

May 2009 Assisted Dr. Jeff Tomberlin with collection, identification and development data for a death scene investigation in Ft. Worth County, Texas.

September 2008 Assisted Dr. Jeff Tomberlin in identification and development data for a death scene investigation in Harris County, Texas.

June 2008 Assisted Dr. Jeff Tomberlin in identification and development data for a death scene investigation in Harris County, Texas.

October 2007 Assisted Dr. Jeff Tomberlin in identification and development data for a death scene investigation in Harris County, Texas.

APPENDIX

A1 – Refereed Proceedings (Total to date = 26; All accepted abstracts to the American Academy of Forensic Science Annual Meeting become part of that year’s proceedings.)

1. **Pechal, JL**, CJ Schmidt, HR Jordan, MM Brewer, and ME Benbow (2018) The Ecology of the Human Postmortem Microbiome: Insights from a Large-Scale Study. *Proceedings of the 70th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIX, 19-24 February. Seattle, WA.
2. Benbow, ME, **JL Pechal**, HR Jordan, V Mesli, E LeGarff, VC Hedouin, CP Campobasso, V Bugelli, S Pittner, F Monticelli and CJ Schmidt (2018) A Global Partnership to Study Geographic Variation in the Human Postmortem Microbiome (HPMM). *Proceedings of the 70th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIX, 19-24 February. Seattle, WA.
3. Burcham, ZM, **JL Pechal**, JL Bose, ME Benbow, CJ Schmidt, and HR Jordan (2018) Fluorescent Bacteria in the Gut of Mice Carcasses Provides Insight on Postmortem Microbial Translocation. *Proceedings of the 70th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIX, 19-24 February. Seattle, WA.
4. Jordan, HR, ZM Burcham, **JL Pechal**, H Campbell, J Rosch, CJ Schmidt, and ME Benbow (2018) Autopsy Sampling to Uncover Human Resistome Diversity. *Proceedings of the 70th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIX, 19-24 February. Seattle, WA.
5. Shattuck, B, CV Isaac, SA Shahid, and **JL Pechal** (2018) Partially Skeletonized Remains Demonstrating Dragging Injuries, Internal Beveling of the Skull, and Tracheal Obstruction: A Team Approach. *Proceedings of the 70th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIX, 19-24 February. Seattle, WA.
6. **Pechal, JL**, CJ Schmidt, HR Jordan, MM Brewer, and ME Benbow (2017) Postmortem Microbiome Changes During Thaw for Autopsy: Two Pediatric Case Studies. *Proceedings of the 69th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVIII, 13-18 February. New Orleans, LA.
7. Benbow, ME, **JL Pechal**, HR Jordan, MM Brewer, and CJ Schmidt (2017) Coupled Microbiome and Insect Evidence in Death Investigation. *Proceedings of the 69th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVIII, 13-18 February. New Orleans, LA.
8. Weatherbee, CR, **JL Pechal**, MM Brewer, TI Stamper, and ME Benbow (2017) Forensic Implications of Multi-Species Blow Fly Larval Masses and Their Associated Microbiomes. *Proceedings of the 69th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVIII, 13-18 February. New Orleans, LA.
9. Burcham, ZM, **JL Pechal**, J Rosch, JL Bose, CJ. Schmidt, ME Benbow, and HR Jordan (2017) Internal Microbial Community Translocation Throughout Decomposition in a Controlled Vertebrate Model. *Proceedings of the 69th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVIII, 13-18 February. New Orleans, LA.
10. Jordan, HR, ZM Burcham, JL Bose, **JL Pechal**; J Rosch, CJ Schmidt, and M. Eric Benbow (2017) Analyses of Necrobiome Structure and Function for Utility in Forensic Science. *Proceedings of the 69th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVIII, 13-18 February. New Orleans, LA.
11. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2016) Drugs and Bugs (Bacteria): Does What You Use Relate to What You Grow? *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.

12. Benbow, ME, **JL Pechal**, CJ Schmidt, and HR Jordan (2016) The Human Postmortem Microbiome and Manner of Death. *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.
13. Weatherbee, CR, **JL Pechal**, TI Stamper, and ME Benbow (2016) Using microbial communities to estimate the postmortem interval: a validation study. *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.
14. Burcham, ZM, **JL Pechal**, JL Bose, ME Benbow, CJ Schmidt, and HR Jordan (2016) Decomposition of Mouse Carcasses Infected With Fluorescently Labeled Bacteria Provide Insight on Postmortem Microbial Translocation. *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.
15. Finley, SJ, **JL Pechal**, ME Benbow, BK Robertson, and GT Javan (2016) Cadaver Gravesoil Microbial Profiles During Decomposition. *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.
16. Sufrin, V, TL Crippen, JK Tomberlin, AM Tarone, **JL Pechal**, ME Benbow, and B Singh (2016) The Utility of Soil Eukaryotes During Human Decomposition and Their Potential Forensic Applications. *Proceedings of the 68th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVII, 22-27 February. Las Vegas, NV.
17. **Pechal, JL**, CJ Schmidt, and ME Benbow (2015) The First Use of Postmortem Microbiomes in Human Death Investigations. *Proceedings of the 67th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVI 16-21 February. Orlando, FL.
18. Finley, SJ, **JL Pechal**, ME Benbow, and GT Javan (2015) Sequencing Approaches to Evaluate Soil Microbial Communities Associated With Human Death Scenes. *Proceedings of the 67th Annual Meeting of the American Academy of Forensic Science* – Vol. XXVI, 16-21 February. Orlando, FL.
19. **Pechal, JL**, TL Crippen, ME Benbow, B Sing, AM Tarone, and JK Tomberlin (2014) Collecting Microbiological Evidence From Cadavers: Techniques and Implications of Using Bacterial Communities in Decomposition Estimates. *Proceedings of the 66th Annual Meeting of the American Academy of Forensic Science* – Vol. XXV, 17-22 February. Seattle, WA.
20. Benbow, ME, **JL Pechal**, B Singh, JK Tomberlin, AM Tarone, M Burke, R Rohde, and TL Crippen (2014) An Initial Assessment of the Structure and Function of the Postmortem Human Microbiome: Forensic Applications. *Proceedings of the 66th Annual Meeting of the American Academy of Forensic Science* – Vol. XXV, 17-22 February. Seattle, WA.
21. Crippen, TL, ME Benbow, **JL Pechal**, B Singh, JK Tomberlin, AM Tarone, SE Dowd, R Rohde, and M Burke (2014) Swine as a Model for Decomposition: A Comparison of Postmortem Microbiomes. *Proceedings of the 66th Annual Meeting of the American Academy of Forensic Science* – Vol. XXV, 17-22 February. Seattle, WA.
22. Singh, B, TL Crippen, AM Tarone, **JL Pechal**, ME Benbow, M Burke, R Rohde, and JK Tomberlin (2014) Utility of Bacteria Associated with Human Cadavers in Estimation of Postmortem Interval (PMI). *Proceedings of the 66th Annual Meeting of the American Academy of Forensic Science* – Vol. XXV, 17-22 February. Seattle, WA.
23. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Invertebrate species diversity, richness, and evenness indicate delayed colonization of remains. *Proceedings of the 64th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIII, 20-25 February. Atlanta, GA.

24. Benbow, ME, AJ Lewis, **JL Pechal**, TB Blair, MC Berg, MF Diaz, JK Tomberlin, TL Crippen, and AM Tarone (2012) The microbial ecology of carcass decomposition between habitats and through time. *Proceedings of the 64th Annual Meeting of the American Academy of Forensic Science* – Vol. XXIII, 20-25 February. Atlanta, GA.
25. Benbow, ME, JK Tomberlin, TL Crippen, A Lewis, and **JL Pechal** (2010) Using Biolog EcoPlates™ as an economical approach to determining postmortem body dump sites through microbial community level physiological profiling. *Proceedings of the 62nd Annual Meeting of the American Academy of Forensic Science* – Vol. XXI, 22-27 February. Seattle, WA.
26. **Pechal, JL**, AL Brundage, ET Brandt, CL Parks, JK Tomberlin, and J Melbye (2009) First insect succession on a human cadaver in Texas. *Proceedings of the 61nd Annual Meeting of the American Academy of Forensic Science* – Vol. XV, 16-21 February. Denver, CO.

A3 – Professional Presentations at Meetings Continued (2008-2016)

(●● notes graduate student presenter; * notes undergraduate student presenter)

27. Schmidt, CJ, **JL Pechal**, ME Benbow, and HR Jordan (2016) A Practical Application of the Postmortem Microbiome. *Michigan Association of Medical Examiners Annual Meeting*, Mt. Pleasant, MI, 4-6 November.
28. Larson ●●, CE, CR Weatherbee, **JL Pechal**, B Gerig, DT Chaloner, G Lamberti, and ME Benbow (2016) The influence of salmon carcass introduction on aquatic microbial and macroinvertebrate community interactions. *101st Ecological Society of America Annual Meeting*, Ft. Lauderdale, FL, 7-12 August.
29. Larson ●●, CE, **JL Pechal**, DG McCullough, and ME Benbow (2016) A terrestrial invader, Emerald Ash Borer (*Argilus planipennis*), influences stream community species sorting. *2017 Society for Freshwater Science Annual Meeting*. Sacramento, CA, 21-26 May.
30. **Pechal, JL**, CJ Schmidt, HR Jordan, and ME Benbow (2016) Drugs and Bugs (Bacteria): Does What You Use Relate to What You Grow? *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February.
31. Benbow, ME, **JL Pechal**, CJ Schmidt, and HR Jordan (2016) The Human Postmortem Microbiome and Manner of Death. *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February.
32. Finley ●●, SJ, **JL Pechal**, ME Benbow, BK Robertson, and GT Javan (2016) Cadaver Gravesoil Microbial Profiles During Decomposition. *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February.
33. Suffrin ●●, V, TL Crippen, JK Tomberlin, AM Tarone, **JL Pechal**, ME Benbow, and B Singh (2016) The Utility of Soil Eukaryotes During Human Decomposition and Their Potential Forensic Applications. *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February.
34. Weatherbee ●●, CR, **JL Pechal**, TI Stamper, and ME Benbow (2016) Using microbial communities to estimate the postmortem interval: a validation study. *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February. (*Poster*)
35. Burcham ●●, ZM, **JL Pechal**, JL Bose, ME Benbow, CJ Schmidt, and HR Jordan (2016) Decomposition of Mouse Carcasses Infected with Fluorescently Labeled Bacteria Provide Insight on Postmortem Microbial Translocation. *68th Annual Meeting of the American Academy of Forensic Science*, Las Vegas, NV, 22-27 February. (*Poster*)
36. **Pechal, JL** and ME Benbow (2015) Insects, salmon and their microbiomes: The influence of resource pulses on ecological networks. *63rd Entomological Society of America Annual Meeting*, Minneapolis, MN, 15-18 November.
37. Larson ●●, CE, CR Weatherbee, **JL Pechal**, B Gerig, G Lamberti, and ME Benbow (2015) Aquatic macroinvertebrate and microbial community responses to salmon carrion introduction into a headwater stream. *63rd Entomological Society of America Annual Meeting*, Minneapolis, MN, 15-18 November.
38. Weatherbee ●●, CR, **JL Pechal**, TI Stamper, and ME Benbow (2015) Mysteries of the maggot mass microbiome: Microbial communities of Calliphoridae larvae throughout carrion decomposition. *63rd Entomological Society of America Annual Meeting*, Minneapolis, MN, 15-18 November.
39. Receveur*, J, G Donato, T Rainey, **JL Pechal**, ME Benbow, and JR Wallace (2015) The characterization of microbiota changes pre/post larval mosquito treatment in post-Hurricane Sandy tree divot habitat. *63rd Entomological Society of America Annual Meeting*, Minneapolis, MN, 15-18 November. (*Poster*)

40. Burcham^{••}, ZM, JA Hood, **JL Pechal**, JL Bose, CJ Schmidt, ME Benbow, and HR Jordan (2015) The Microbial Clock: Tracking Bacterial Translocation through Successional Host Decomposition. *American Society for Microbiology South Central Branch Meeting*, Hattiesburg, Mississippi, 18-19 September. (*Poster*)
41. Receveur*, J, G Donato, T Rainey, **JL Pechal**, ME Benbow, and JR Wallace (2015) Potential impacts of a Hurricane Sandy sized storm event on tree divot mosquito habitat and population in New Jersey. *Entomological Society of Pennsylvania*, Climbers Run, PA. September.
42. Burcham^{••}, ZM, JA Hood, **JL Pechal**, JL Bose, CJ Schmidt, ME Benbow, and HR Jordan (2015) Fluorescently Labeled Bacteria Provide Insight on Postmortem Microbial Translocation. *7th European Academy of Forensic Science Conference*, Prague, Czech Republic, 6 – 11 September. (*Poster*)
43. Burcham^{••}, ZM, **JL Pechal**, ME Benbow, and HR Jordan (2015) Investigating Resistomes of the Human Microbiome. *115th American Society For Microbiology Annual General Meeting*, New Orleans, LA, 30 May – 2 June. (*Poster*)
44. **Pechal, JL** and ME Benbow (2015) Influence of resource pulses on ecological networks: Insects, salmon and their microbiomes. *2015 Society for Freshwater Science Annual Meeting*, Milwaukee, WI, 17-21 May.
45. Larson^{••}, CE, C Weatherbee, **JL Pechal**, B Gerig, GR Lamberti, and ME Benbow (2015) Salmon carrion decomposition influences headwater stream communities over time. *2015 Society for Freshwater Science Annual Meeting*, Milwaukee, WI, 17-21 May.
46. **Pechal, JL** and ME Benbow (2015) Influence of resource pulses on cadaver networks: Insects, microbiomes, & their potential use in forensic entomology. *12th European Association for Forensic Entomology Annual Meeting*, Huddersfield, UK, 6-9 May.
47. Receveur*, J, G Donato, T Rainey, **JL Pechal**, ME Benbow, and JR Wallace (2015) The characterization of microbiota changes after larval mosquito treatment in post-Hurricane Sandy tree divot habitat in Hunterdon County, NJ. *Commonwealth of Pennsylvania University Biologists Meeting*, Millersville, PA. March.
48. **Pechal, JL**, CJ Schmidt, and ME Benbow (2015) The First Use of Postmortem Microbiomes in Human Death Investigations. *67th Annual Meeting of the American Academy of Forensic Sciences*, Orlando, FL, 16-21 February.
49. Finley^{••}, SJ, **JL Pechal**, ME Benbow, and GT Javan (2015) Sequencing Approaches to Evaluate Soil Microbial Communities Associated With Human Death Scenes. *67th Annual Meeting of the American Academy of Forensic Sciences*, Orlando, FL, 16-21 February.
50. Larson^{••}, CE, CR Weatherbee, **JL Pechal**, GA Lamberti, B Gerig, and Benbow, ME (2015) Salmon carrion decomposition influences surrounding headwater stream community over time. *29th Annual Meeting of the Michigan Mosquito Control Association*, Bellaire, MI, 4-5 February.
51. Benbow, ME and **JL Pechal** (2014) The living dead of Alaskan salmon marine derived nutrients: Insights from the Calliphoridae microbiome. *62nd Entomological Society of America Annual Meeting*, Portland, OR, 16-19 November.
52. Benbow, ME and **JL Pechal** (2014) Stream Organic Matter Processing and the Insect Microbiome. *3rd Science in the Northwoods Conference*, Boulder Junction, WI, 15-17 October.
53. **Pechal, JL**, R Erb, JM Lang, JR Wallace, and ME Benbow (2014) Living on the Dead: Microbial Community Succession on Decomposing Carrion in a Headwater Stream and Possible Applications for Forensics. *2014 Joint Aquatic Sciences Meeting*, Portland, OR, 18-23 May. (*Poster*)

54. Benbow, ME and **JL Pechal** (2014) An Ecoregion Perspective of Calliphoridae Microbiome Diversity. *11th European Association for Forensic Entomology Annual Meeting*, Lille, France, 19-21 April.
55. Gemmellaro^{••}, D, ME Benbow, **JL Pechal**, V Cervenka, and L Weidner (2014) Forensic Entomology's First Steps in Sicily: Lava Fields and Caves. *11th European Association for Forensic Entomology Annual Meeting*, Lille, France, 19-21 April.
56. **Pechal, JL**, TL Crippen, ME Benbow, B Singh, AM Tarone, and JK Tomberlin (2014) Collecting Microbiological Evidence From Cadavers: Techniques and Implications of Using Bacterial Communities in Decomposition Estimates. *66th American Academy of Forensic Science Annual Meeting*, Seattle, WA, 17-22 February.
57. Benbow, ME, **JL Pechal**, B Singh, JK Tomberlin, AM Tarone, M Burke, R Rohde, and TL Crippen (2014) An Initial Assessment of the Structure and Function of the Postmortem Human Microbiome: Forensic Applications. *66th American Academy of Forensic Science Annual Meeting*, Seattle, WA, 17-22 February.
58. Crippen, TL, ME Benbow, **JL Pechal**, B Singh, JK Tomberlin, AM Tarone, SE Dowd, R Rohde, and M Burke (2014) Swine as a Model for Decomposition: A Comparison of Postmortem Microbiomes. *66th American Academy of Forensic Science Annual Meeting*, Seattle, WA, 17-22 February.
59. Singh, B, TL Crippen, AM Tarone, **JL Pechal**, ME Benbow, M Burke, R Rohde, and JK Tomberlin (2014) Utility of Bacteria Associated With Human Cadavers in Estimation of Postmortem Interval (PMI). *66th American Academy of Forensic Science Annual Meeting*, Seattle, WA, 17-22 February.
60. Benbow, ME, JM Lang, and **JL Pechal** (2013) Does epilithic biofilm community structure affect the mayfly microbiome? *61th Entomological Society of America Annual Meeting*, Austin, TX, 10-13 November.
61. Weidner^{••}, L, ME Benbow, **JL Pechal**, JK Tomberlin, G Hamilton (2013) Distribution and Biodiversity of Blow Flies (Diptera: Calliphoridae) Across New Jersey. *61th Entomological Society of America Annual Meeting*, Austin, TX, 10-13 November.
62. Whitaker*, A, M McHugh, **JL Pechal**, and ME Benbow (2013) Appalachian Ecoregions: A Calliphoridae Survey. *Greater Cincinnati American Women In Science Undergraduate Poster Symposium*, Cincinnati, OH, 25 October. (*Poster*)
63. **Pechal, JL**, H Moore, F Drijfout, and ME Benbow (2013) Hydrocarbon Profile Changes Throughout Adult Calliphoridae Aging. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July.
64. Lang^{••}, JM, **JL Pechal**, R Erb, JR Wallace, and ME Benbow (2013) The Effect of Habitat on Epinecrotic Microbial Community Structure During Freshwater Carrion Decomposition. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July.
65. Erb*, R, **JL Pechal**, JM Lang, JR Wallace, and ME Benbow (2013) Aquatic Microbial Communities to Estimate the Postmortem Submersion Interval Using High Throughput Metagenomic Sequencing. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July.
66. Weidner^{••}, L, ME Benbow, **JL Pechal**, JK Tomberlin, G Hamilton (2013) Distribution and Biodiversity of Blow Flies (Diptera: Calliphoridae) Across New Jersey. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July.
67. Baudendistel*, J, **JL Pechal**, TB Blair, JM Alfieri, L Shewhart, A Calteaux, N Henger, and ME Benbow (2013) Forensic Scavenging Patterns: A Forensic Scavenging Study in Conjunction with the University of Dayton. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July. (*Poster*)

68. McHugh*, M, A Whitaker*, **JL Pechal**, and ME Benbow (2013) Calliphoridae Diversity in Appalachian Ecoregions. *11th North American Forensic Entomology Association Annual Meeting*, Dayton, OH, 15-17 July. (*Poster*)
69. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2013) Forensic Ecology: Using Insects and Bacteria for Criminal Investigations. *32nd Empire State Association of Two Year College Biologists Annual Meeting*, Cobleskill NY, 19-21 April. (*Poster*)
70. Henger*, N, J Alfieri, **JL Pechal**, J Baudendistel, ME Benbow (2013) Succession and Female Gravid Status of *Chrysomya rufifacies* and *Cochliomyia macellaria* on Carrion. *2013 University of Dayton Stander Symposium*, Dayton, OH, 17 April. (*Poster*)
71. Lang**, JL, **JL Pechal**, W Kmetz, R Erb, J Baudendistel, J Wallace, ME Benbow (2013) Using epinecrotic biofilms for applications in forensic science, *2013 University of Dayton Stander Symposium*, Dayton, OH, 17 April. (*Poster*)
72. Whitaker*, AN, M McHugh, **JL Pechal**, and ME Benbow (2013) Appalachian Ecoregions: A Calliphoridae Survey. *2013 Beta Beta Beta Regional Convention*, Findlay, OH, 29 March. (*Poster*)
73. Alfieri*, J, T Blair, **JL Pechal**, N Henger, A Calteux, L Shewhart, J Baudendistel, ME Benbow (2013) Scavenging Effects on Forensically Important Insect and Microbial Community Dynamics. *2013 NE-4 Regional Beta Beta Beta Convention*, Dayton, OH, 23 March.
74. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Bacteria communities predicting insect composition on an ephemeral resource. *60th Entomological Society of America Annual Meeting*, Knoxville TN, 11-14 November.
75. Benbow, ME, JK Tomberlin, TL Crippen, AM Tarone, T Wood, HN LeBlanc, **JL Pechal** (2012) Microbes, maggots and multiplicity: Biotic and abiotic complexities of carrion decomposition. *60th Entomological Society of America Annual Meeting*, Knoxville TN, 11-14 November.
76. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Quantifying microbe-insect interactions to predict minimum postmortem intervals. *10th North American Forensic Entomology Association Annual Meeting*, Las Vegas, NV, 17-20 July.
77. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Utilizing bacterial community succession to predict the postmortem interval of a corpse: implications for forensic entomology. *9th European Association for Forensic Entomology Annual Meeting*, Toruń, Poland, 18-21 April.
78. Benbow, ME, **JL Pechal**, and JK Tomberlin (2012) Community succession effects of delaying necrophagous insect colonization of carrion. *9th European Association for Forensic Entomology Annual Meeting*, Toruń, Poland, 18-21 April.
79. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2012) Invertebrate species diversity, richness, and evenness indicate delayed colonization of remains. *64th American Academy of Forensic Science Annual Meeting*, Atlanta, GA, 20-25 February.
80. Benbow, ME, AJ Lewis, **JL Pechal**, T Blair, MC Berg, MF Diaz, JK Tomberlin, TL Crippen, and AM Tarone (2012) The microbial ecology of carcass decomposition between habitats and through time. *64th American Academy of Forensic Science Annual Meeting*, Atlanta, GA, 20-25 February.
81. **Pechal, JL**, ME Benbow, and JK Tomberlin (2011) Invertebrate community successional changes resulting from delayed colonization on ephemeral resources. *59th Entomological Society of America Annual Meeting*, Reno, NV, 13-16 November.

82. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin (2011) Microbial community function on decomposing vertebrate remains. *96th Ecological Society of America Annual Meeting*, Austin, TX, 7-12 August.
83. **Pechal, JL**, ME Benbow, TL Crippen, AM Tarone, and JK Tomberlin. (2011) A novel approach in forensic estimations of period of insect activity: Microbial community profiles as indicators of decomposition. *9th North American Forensic Entomology Association Annual Meeting*, College Station, TX, 20-22 July.
84. **Pechal, JL**, AJ Lewis, ME Benbow, and JK Tomberlin (2010) Microbial metabolic community profiles on decomposing ephemeral resources. *13th Annual Entomology Graduate Student Forum*, Texas A&M University, College Station, TX, 26 August.
85. Benbow, ME, JK Tomberlin, TL Crippen, A Lewis, and **JL Pechal** (2010) Using Biolog EcoPlates™ as an economical approach to determining postmortem body dump sites through microbial community level physiological profiling. *62nd Annual American Academy of Forensic Science Annual Meeting*, Seattle, WA, 22-27 February.
86. **Pechal, JL**, L Zheng, TL Crippen, and JK Tomberlin (2019) Microbial fauna associated with the external surface of decomposing pig remains. *12th Annual Entomology Graduate Student Forum*, Texas A&M University, College Station, TX, 26 August.
87. **Pechal, JL** and JK Tomberlin (2009) Volatile discrimination of protein and sugar sources by newly emerged *Sarcophaga* spp. *7th North American Forensic Entomology Association Annual Meeting*, Miami, FL, 15-17 July.
88. **Pechal, JL**, AL Brundage, E Brandt, C Parks, J Melbye, and JK Tomberlin (2009) First insect succession study on a human cadaver in Texas. *61st American Academy of Forensic Science Annual Meeting*, Denver, CO, 15-21 February.
89. **Pechal, JL**, RE Gold, and JK Tomberlin (2008) Gene flow and vector competence among *Periplaneta americana* cockroaches (Blattodea: Blatteridae) in central Texas. *6th North American Forensic Entomology Association Annual Meeting*, Atlantic City, NJ, 9-11 June.

A4 – Invited Workshop Speaker/Leader Continued (2009-2014)

7. **Pechal, JL**, ME Benbow (2014) Sampling, Data Collection and Equipment. **Invited Speaker and Session Leader**. In: *Forensic Microbiology: Where do we begin?* 66th Annual Meeting of the American Academy of Forensic Science. Seattle, WA, February 17-22.
8. Benbow, ME, **JL Pechal** (2014) Data Analysis and Interpretation. **Invited Speaker and Session Leader**. In: *Forensic Microbiology: Where do we begin?* 66th Annual Meeting of the American Academy of Forensic Science. Seattle, WA, February 17-22.
9. Benbow, ME, **JL Pechal** (2014) Experimental Design for Future Research. **Invited Speaker and Session Leader**. In: *Forensic Microbiology: Where do we begin?* 66th Annual Meeting of the American Academy of Forensic Science. Seattle, WA, February 17-22.
10. **JL Pechal** (2013) Entomological evidence: Field collection techniques for mock crime scenes. **Invited Session Leader**. 11th Annual Meeting of the North American Forensic Entomology Association. Dayton, OH, July 15-17.
11. Benbow, ME, **JL Pechal** (2012) Multivariate statistical approaches for analyzing community succession in forensic entomology. **Invited Speaker and Session Leader**. 10th Annual Meeting of the North American Forensic Entomology Association. Las Vegas, NV, July 16-20.
12. **Pechal, JL** (2012) Collection of forensic entomological evidence. TEEX skeletal death investigation forensic investigator certificate workshop. San Marcos, TX, May 21.
13. **Pechal, JL** (2012) Collection of forensic entomological evidence. Forensic entomology workshop for the San Antonio Police Department, San Antonio, TX, March.
14. **Pechal, JL** (2011) Collection of forensic entomological evidence. Forensic entomology workshop for San Antonio Police Department Crime Scene Investigators, College Station, TX, November.
15. **Pechal, JL** (2011) Collection of forensic entomological evidence. Texas State University Forensic Entomology Workshop at the Forensic Anthropology Center at Texas State - Grady Early Forensic Anthropology Research Laboratory, San Marcos, TX, November.
16. **Pechal, JL** (2011) Forensic entomological evidence: What to look for & how to collect. 2011 Invited speaker at Texas Wesleyan University Forensic Entomology Workshop, Fort Worth, TX, September.
17. **Pechal, JL** (2010) Forensic entomological evidence: What to look for & how to collect Invited speaker at Texas Wesleyan University Forensic Entomology Workshop, Fort Worth, TX, September.
18. **Pechal, JL** (2010) Forensic entomological evidence: What to look for & how to collect Invited speaker at Texas Wesleyan University Forensic Entomology Workshop, Fort Worth, TX, March.
19. **Pechal, JL** (2009) Forensic entomology and it's importance for law enforcement agents. Forensic entomology workshop to a group of law enforcement agents from Tarrant County, Ft. Worth, TX, December.
20. **Pechal, JL** (2009) Forensic entomology and it's importance for law enforcement agents. Forensic entomology workshop for the Texas State Rangers in-service training series in Austin, TX, October.
21. **Pechal, JL** (2009) What is forensic entomology? Forensic entomology workshop to a group of Master Gardeners in Montgomery County, Conroe, TX, September.

A5 – Outreach Events Continued (2008-2014)

- December 2014 Volunteer outreach to the community with maggot art at the Department of Entomology's Bug House Holiday Open House at Michigan State University (*Grades: K-12 event*).
- October 2014 Volunteer outreach to the community with maggot art at the Department of Entomology's Bug House Halloween Open House at Michigan State University (*Grades: K-12 event*).
- October 2014 Participated in a Michigan State University's Honors College Fireside Chat.
- March 2014 Volunteer outreach to the community with maggot art at the Michigan State University Middle School Girls' Math and Science Day (*Grades: K-12 event*).
- November 2013 Volunteer outreach to the community with maggot art at the Chaminade Julianne STEM Expo (*Grades: K-12 event*).
- March 2013 Volunteer outreach to the community with maggot art at the Boonshoft Museum of Discovery – ShamROCK '13! Science Day (*Grades: K-12 event*).
- February 2013 Volunteer outreach to the community with maggot art at Family Science FEST - Leibold Catholic Middle School (*Grades: K-12 event*).
- November 2012 Part of the organizing committee of a community event, Dayton Regional Science Festival - Chemistry + Cocktails, and volunteered outreach to the community with maggot art.
- November 2012 Volunteer outreach to the community with maggot art at the Chaminade Julianne STEM Expo (*Grades: K-12 event*).
- April 2012 Volunteered to teach a class of approximately 20 five-year-olds about general entomology (*Grades: K-12 event*).
- May 2011 Volunteered to teach a class of approximately 30 five-year-olds about general entomology (*Grades: K-12 event*).
- March 2011 Volunteered at the 4-H/FFA Entomology Judging Clinic hosted by the Department of Entomology at Texas A&M University. Helping students identify insects and prepare for the state competition. (9-17 years old, *Grades: K-12 event*)
- October 2010 Presented to a group of high school students about the Department of Entomology at Texas A&M University with an emphasis on Forensic entomology (*Grades: K-12 event*).
- February 2010 Volunteered at the Cypress Grove Middle School in College Station, Texas to assist in their 5th - 8th grade UIL meet (*Grades: K-12 event*).
- July 2009 Presented to the Youth Adventure Program (YAP) summer camp for high school students with an interest in forensic sciences about blood spatter and forensic entomology, Texas A&M University, College Station, TX (*Grades: K-12 event*)

- June 2009 Invited speaker at a forensics workshop to approximately 30 children attending Leon County Kids Kamp in Jewett, TX. (8 – 15 years old, *Grades: K-12 event*)
- July 2008 Presented to the Youth Adventure Program (YAP) summer camp for high school students with an interest in forensic sciences about blood spatter and forensic entomology, Texas A&M University, College Station, TX (*Grades: K-12 event*)
- May 2008 Presented to a group of potential transfer students from junior colleges about the Department of Entomology at Texas A&M University with an emphasis in Forensic entomology.
- May 2008 Presented to a group of potential transfer students about the Department of Entomology at Texas A&M University with an emphasis on the forensic track.