**Samantha R. Hays, Ph.D.**

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**Education**

**PhD** Texas A&M University, Entomology May 2021

**MS** Tarleton State University, Agriculture and Natural Resource Sciences May 2015

**BS** Tarleton State University, Animal Science August 2013

**Research Grants**

**Forensic and Investigative Sciences Program ($15,241)** 2024

*Grant title*: “Near infrared spectroscopy as a field expedient bioforensic method to determine post-mortem interval”

*Investigators*: Dr. Pete Teel, Entomology; Dr. Douglas R. Tolleson, Ecosystem Science and Management; Dr. Thomas Welsh, Jr., Animal Science

*Collaborators*: Dr. Samantha R. Hays, Entomology; Dr. Taylor G. Donaldson, Entomology; Erika Campbell, Research Toxicologist

**USDA, NIFA, AFRI, CARE Grant ($224,341)** 2017-2022

*Grant title*: “Use of non-invasive Near Infrared Reflectance Spectroscopy of bovine feces to optimize animal health in the management of tick infestations”

*Investigators*: Dr. Pete Teel, Entomology; Dr. David Anderson, Agricultural Economics; Dr. Thomas Hairgrove, Animal Science; Dr. Jay Angerer, Ganlab; Dr. Sonja Swiger, Extension Entomologist; Dr. Douglas Tolleson, Ecosystem Science and Management; Dr. Samantha Hays, Entomology

*Collaborators*: Dr. Robert Conley, Ranch Veterinarian; Mr. Brooks Hodges, Ranch General Manager; Dr. Adalberto Perez de Leon, USDA, ARS

**Texas A&M AgriLife Research Insect Vector Diseases Grant ($120,000)** 2017-2021

*Grant title*: “Technology for non-invasive detection of tick-infested cattle by near infrared reflectance spectroscopy of bovine feces”

*Investigators*: Dr. Pete Teel, Entomology; Dr. Douglas R. Tolleson, Ecosystem Science and Management; Dr. Thomas Welsh, Jr., Animal Science; Dr. Gordon Carstens, Animal Science; Dr. David Anderson, Agricultural Economics; Samantha Hays, Entomology

*Collaborators*: Dr. Adalberto Perez de Leon, USDA, ARS; Dr. Robert Miller, USDA, ARS

**Publications**

***Journal Publications***

Dou, T., A. P. Holman, **S. R. Hays**, T. G. Donaldson, N. Goff, P. D. Teel, D. Kurouski. 2024. Identification of Adult Ixodid Tick Species by Raman Spectroscopy of Their Feces. Parasites & Vectors. <https://doi.org/10.21203/rs.3.rs-3405678/v1>

**Hays, S. R.**, B. T. Rich, M. T. Longnecker, Jay P. Angerer, Douglas R. Tolleson, and Pete D. Teel. 2023. Detection of winter tick, *Dermacentor albipictus*, infestations using near infrared reflectance spectroscopy. Veterinary Parasitology (323): 110045.

Dou, T., A. Ermolenkov, **S. R. Hays**, B. T. Rich, T. G. Donaldson, D. Thomas, P. D. Teel, and D. Kurouski. (2022). Raman-based identification of tick species (Ixodidae) by spectroscopic analysis of their feces. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 271:120966. <https://doi.org/10.1016/j.saa.2022.120966>

**Samantha R Hays**, Pete D Teel, Heath D Starns, Nick E Garza, Jose M Diaz-Gomez, Sarah L Beall, Doug R Tolleson, Effect of Anti-acaricide Treatment on Tick Species Present and Performance of Growing Beef Heifers, Journal of Animal Science, Volume 99, Issue Supplement\_2, May 2021, Pages 33–34, <https://doi.org/10.1093/jas/skab096.060>

**Samantha R Hays**, Pete D Teel, Heath D Starns, Nick Garza, Robert Moen, Douglas R Tolleson, 125 Tick burden observed on cattle and sheep during winter season on the Edwards Plateau of Texas, Journal of Animal Science, Volume 97, Issue Supplement\_1, July 2019, Pages 53–54, <https://doi.org/10.1093/jas/skz053.121>

Speshock, J.L., Brady, J.A., Eastman, J., Roach, T., **Hays, S.**, and Kattes, D. (2019) Impact of Manure Storage Time and Temperature on Microbial Composition and Stable Fly (Diptera: Muscidae) Development. *Advances in Microbiology*, 9, 248-265. <https://doi.org/10.4236/aim.2019.93018>

***Proceedings Publications***

**Hays, S. R.**, P. D. Teel, and T. G. Donaldson. 2024. Farm and Ranch Level Biosecurity for Ticks and Accompanying Diseases: An Overview of Treatments for Tick Control with Discussion Concerning Product Storage, Application and Safety. 69th Annual Texas Beef Cattle Short Course Proceedings.

**Hays, S. R.**, and P. D. Teel. 2023. Integrated Tick Management – from Biosecurity to Control: The Value of “An Ounce of Prevention”. 68th Annual Texas Beef Cattle Short Course Proceedings.

Teel, P. D., and **S. R. Hays**. 2023. Ticks as Vectors of Livestock Disease Pathogens. 68th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Hays, S. R.**, and P. D. Teel. 2022. Ticks of Regional Significance to Livestock Producers. 67th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Hays, S. R.**, and P. D. Teel. 2022. Integrated Tick Management: Using Tick-Host-Landscape Interactions for Tick Control in Cattle Grazing Systems. 67th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Hays, Samantha R.**, Taylor G. Donaldson, Brian T. Rich, Miranda Peterson, Heath D. Starns, Douglas R. Tolleson, and Pete D. Teel. 2021. Integrated Tick Management: Using Tick-Host-Landscape Interactions for Tick Control in Cattle Grazing Systems. 67th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Hays, Samantha R**., Shannon H. Degenhart, Sonja L. Swiger, Jay Angerer, Douglas R. Tolleson, Thomas B. Hairgrove, and Pete D. Teel. 2020. Update on Tick Research at Texas A&M AgriLife Research. Part 1. Technology Adoption in Grazing Cattle Systems: Future Potential Impact on Integrated Tick Management. 66th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Hays, Samantha R.**, Justin L. Talley, Douglas R. Tolleson, Jay Angerer, Brian T. Rich, and Pete D. Teel. 2019. Development of a non-invasive technology to detect tick-infested cattle and monitor effectiveness of acaricide treatments for tick control. 65th Annual Texas A&M Beef Cattle Short Course Proceedings.

**Invited Conference Presentations**

**Hays, S. R.**, P. D. Teel, and T. G. Donaldson. 2024. Farm and Ranch Level Biosecurity for Ticks and Accompanying Diseases: An Overview of Treatments for Tick Control with Discussion Concerning Product Storage, Application and Safety. Control and Management of Itchy Critters: Flies, Gnats, and Ticks. Continuing Education Program, 69th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 6 August 2024. (Oral)

**Hays, S. R.** T. G. Donaldson, P. D. Teel, N. E. Garza, R. A. Moen, H. D. Starns, B. T. Rich, and D. R. Tolleson. 2024. Integrated tick management for sustainable mixed-species animal production systems in the southwestern region of Texas. “Livestock/Veterinary Entomology – Protecting Animals in the Southwestern United States” Session at the Southwestern Branch Annual Meeting, Entomological Society of America, Albuquerque, NM, 23 April 2024. (Oral)

Teel, P. D., T. G. Donaldson, **S. R. Hays**, H. H. Wang, W. E. Grant, and P. E. Kaufman. 2024. *Ornithodoros turicata* and the case for a potential sylvatic cycle of African swine fever virus in the southwestern USA. “Livestock/Veterinary Entomology – Protecting Animals in the Southwestern United States” Session at the Southwestern Branch Annual Meeting, Entomological Society of America, Albuquerque, NM, 23 April 2024. (Oral)

**Hays, S. R.**, and P. D. Teel. 2023. Integrated Tick Management – from Biosecurity to Control: The Value of “An Ounce of Prevention”. Control and Management of Itchy Critters: Flies, Gnats, and Ticks. Continuing Education Program, 68th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 8 August 2023. (Oral)

Teel, P. D., and **S. R. Hays**. 2023. Ticks as Vectors of Livestock Disease Pathogens. Control and Management of Itchy Critters: Flies, Gnats, and Ticks. Continuing Education Program, 68th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 8 August 2023. (Oral)

Teel, P. D., and **S. R. Hays**. Ticks of Regional Significance to Livestock Producers. Control and Management of Itchy Critters: Flies, Gnats, and Ticks. Continuing Education Program, 68th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 2 August 2022. (Oral)

**Hays, S. R.**, and P. D. Teel. Integrated Tick Management in Livestock Production Systems: Acaricides and Their Applications. Control and Management of Itchy Critters: Flies, Gnats, and Ticks. Continuing Education Program, 68th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 2 August 2022. (Oral)

**Hays, S. R.**, T. G. Donaldson, B. T. Rich, H. D. Starns, D. R. Tolleson, and P. D. Teel. Integrated Tick Management: Using Tick-Host-Landscape Interactions for Tick Control. Vector Borne Disease Session: Flies, Gnats, Ticks. Continuing Education Program, 67th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 3 August 2021. (Oral)

**Hays, S. R.**, S. H. Degenhart, S. L. Swiger, D. R. Tolleson, J. Angerer, T. B. Hairgrove, and P. D. Teel. Update on Tick Research at Texas A&M AgriLife Research. Part 1: Technology Adoption in Grazing Cattle Systems: Future Potential Impact on Integrated Tick Management. Vector Borne Disease Session: Flies, Gnats, Ticks. Continuing Education Program, 66th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 4 August 2020. (Virtual; Oral)

**Hays, S. R.** Vectors of Bovine Anaplasmosis. Veterinary Continuing Education Program, Southwest Veterinary Symposium, San Antonio, TX, September 2019. (Oral)

**Hays, S. R.**, J. Talley, D. R. Tolleson, J. Angerer, B. T. Rich and P. D. Teel. Development of a non-invasive technology to detect tick-infested cattle and monitor effectiveness of acaricide treatments for tick control. Vector Borne Disease Session: Flies, Gnats, Ticks. Continuing Education Program, 65th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 6 August 2019. (Oral)

**Hays, S. R.**, P. D. Teel, T. B. Hairgrove, D. P. Anderson, S. L. Swiger, J. Angerer, D. R. Tolleson. Economic assessment of working cattle and technology adoption in grazing cattle systems. Vector Borne Disease Session: Flies, Gnats, Ticks. Continuing Education Program, 65th Annual Texas A&M Beef Cattle Short Course, Texas A&M AgriLife Extension, 6 August 2019. (Oral)

**Invited Lecturer Presentations**

**Hays, S. R.** Tick Identification – *Amblyomma*, *Dermacentor*, Weslaco, TX, October 2024.

**Hays, S. R.** Introduction to Tick Biology. South Texas Tick Workshop, Weslaco, TX, October 2024.

**Hays, S. R.** Tick Surveillance and Monitoring. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, October 2024.

**Hays, S. R.** Tick Identification. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, October 2024.

**Hays, S. R.** Introduction to Tick Anatomy and Biology. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, October 2024.

**Hays, S. R.** Integrated Tick Management. Urban Tick Workshop, Dallas, TX, April 2024.

**Hays, S. R.** Tick Surveillance Techniques. Urban Tick Workshop, Dallas, TX, April 2024.

**Hays, S. R.** Tick Identification. Urban Tick Workshop, Dallas, TX, April 2024.

**Hays, S. R.** Introduction to Tick Biology. Urban Tick Workshop, Dallas, TX, April 2024.

**Hays, S. R.** Tick Surveillance and Monitoring. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, September 2019.

**Hays, S. R.** Tick Identification. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, September 2019.

**Hays, S. R.** Introduction to Tick Anatomy and Biology. Master of Vector-Borne Disease Management 3-Day Training Workshop, Dallas, TX, September 2019.

**Extension Presentations**

**Hays, S. R.** Internal and External Control of Beef Cattle Parasites. Leon County Beef and Forage Workshop, Centerville, TX, April 2023.

**Hays, S. R.** Ectoparasite Control on Beef Cattle. Grimes County C.E.U. Program, Navasota, TX, May 2019.

**Hays, S. R.** Insect and Parasite Control in Beef Cattle. Pesticide Applicators C.E.U. Program, Ables Springs Fire Department, Terrell, TX, March 2019.

**Conference and Symposium Presentations**

Teel, P. D., T. B. Hairgrove, **S. R. Hays**, and T. G. Donaldson. Range expansion of the Asian longhorned tick, *Haemaphysalis longicornis*: vigilance, detection, and response impacts for Texas. James Steele Conference on Diseases in Nature Transmissible to Humans, 22-24 May 2024. (Poster)

Teel, P. D., T. Dou, A. Holman, **S.R. Hays**, T. G. Donaldson, B. T. Rich and D. Kurouski. Identification of ixodid tick species by Raman-based spectroscopic analysis of their feces. 65th Annual Livestock Insect Workers Conference, Fredericksburg, TX, 11-14 June 2023. (Oral)

**Hays, S. R.**, B. T. Rich, M. T. Longnecker, J. Angerer, D. R. Tolleson, and P. D. Teel. Detection of winter tick, *Dermacentor albipictus*, infestations using near infrared reflectance spectroscopy of bovine feces. 65th Annual Livestock Insect Workers Conference, Fredericksburg, TX, 11-14 June 2023. (Oral)

**Hays, S. R.**, B. T. Rich, P. D. Teel, M. T. Longnecker, and D. R. Tolleson. Larval survivorship of the winter tick, *Dermacentor albipictus* (Acari: Ixodidae), exposed to varying saturation deficits in the laboratory. 64th Annual Livestock Insect Workers Conference, Dallas, TX, 7 June 2022. (Oral)

**Hays, S.** **R.**, P. D. Teel, S. Crawford, D. R. Tolleson, T. B. Hairgrove, D. P. Anderson, S. H. Degenhart, and S. L. Swiger. Cattle producer adoption of technology in grazing cattle systems in terms of integrated tick management. 64th Annual Livestock Insect Workers Conference, Dallas, TX, 6 June 2022. (Oral)

**Hays, S. R.**, P. D. Teel, H. D. Starns, N. E. Garza, J. M. Diaz, S. L. Beall, D. R. Tolleson. Effect of anti-acaricide treatment on tick species present and performance of growing beef heifers. American Society for Animal Science Southern Section, Session: Ruminant Animal Production I, Louisville, KY, 16 July 2021. (Oral)

Starns, H. D., **S. R. Hays**, B. T. Rich, T. G. Donaldson, P. D. Teel, and D. R. Tolleson. Lone Star tick (*Amblyomma americanum*) response to vegetative changes wrought by season of prescribed fire in a semi-arid savanna ecosystem. Society of Range Management Annual Meeting, Virtual, February 2021. (Oral)

**Hays, S. R.**, P. D. Teel, S. L. Swiger, J. K. Tomberlin, T. B. Hairgrove, and D. P. Anderson. Detection of Winter Tick Infested Cattle Using Near Infrared Reflectance Spectroscopy of Bovine Feces. Joint meeting of the 63rd US Livestock Insect Workers Conference with the 27th World Association for the Advancement of Veterinary Parasitology and the 64th American Association of Veterinary Parasitologists. Madison, Wisconsin, 7-11 July 2019. (Oral)

Donaldson, T. G., **S. R. Hays**, B. R. Ethridge and P. D. Teel. The distribution, seasonality, and host utilization of six medically important ticks (Acari: Ixodidae) in Texas from passive surveillance. Poster presented at the 69th Annual James Steele Conference on Diseases in Nature Transmissible to Man, Fort Worth, TX, 29-31 May 2019. (Poster)

**Hays, S. R.**, P. D. Teel, S. L. Swiger, T. B. Hairgrove, D. P. Anderson, J. K. Tomberlin. Economic assessment of working cattle and technology adoption in grazing cattle systems: A paper handout survey for cattle producers concentrated on beef production characteristics, technology adoption, and ectoparasite control. Southwestern Branch Annual Meeting, Entomological Society of America, Tulsa, OK, 14-18 April 2019. (Poster)

**Hays, S. R.**, P. D. Teel, T. G. Donaldson, B. T. Rich, H. D. Starns, N. E. Garza, and D. R. Tolleson. Tick Species Observed in Burned versus Unburned Rangeland Sites in the Edwards Plateau of Texas. Society of Range Management Annual Meeting, Minnesota, USA, February 2019. (Poster)

**Hays, S. R.**, P. D. Teel, H. D. Starns, N. E. Garza, R. A. Moen, and D. R. Tolleson. Tick burden observed on cattle and sheep during winter season on the Edwards Plateau of Texas. Annual Meeting of the American Society of Animal Science, Oklahoma City, OK, January 2019. (Oral)

**Professional Service**

**Program Co-Chair**

Southwestern Branch of the Entomological Society of America, 2025-2026

**Symposium Co-Chair**

The Society for Vector Ecology, Veterinary Entomology Symposium, September 2023

**Ad hoc Reviewer for:**

Northeastern Integrated Pest Management Center, 2023

**Departmental Committees Served:**

Acarology Position Search Committee Member, Department of Entomology, Texas A&M University, October 2017 to April 2018.