

## Tammi Lynne Johnson, Ph.D.

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### EDUCATION

- 2012 *Ph.D. Organismal Biology and Ecology*  
Dissertation: The ecology of tick-borne relapsing fever in western North America  
University of Montana – Missoula, MT (Advisors: Drs. Tom Schwan and Kerry Foresman)
- 2005 *M.S. Biology*  
Thesis: Spatial dynamics of a bacterial pathogen: Sylvatic plague in black-tailed prairie dogs  
Kansas State University – Manhattan, KS (Advisor: Dr. Jack Cully)
- 2004 *Graduate Certificate in Geographic Information Science*  
Kansas State University – Manhattan, KS
- 2000 *B.S. Biology*  
University of Mary – Bismarck, ND

### RESEARCH EXPERIENCE

- Assistant Professor** – Texas A&M AgriLife Research, 1619 Garner Field Rd., Uvalde, TX **10/2018 – Present**
- Adjunct/Practitioner Faculty** – School of Public and Community Health Sciences, University of Montana, Missoula, MT **07/2017 - Present**
- Research Fellow** – Oak Ridge Institute for Science and Education (ORISE), Centers for Disease Control and Prevention, 3156 Rampart Rd., Fort Collins, CO **02/2014 – 09/2018**
- Postdoctoral Research Fellow** – American Society for Microbiology, Centers for Disease Control and Prevention, 3156 Rampart Rd., Fort Collins, CO **02/2012 – 02/2014**
- PhD Graduate Student** – University of Montana/Rocky Mountain Laboratories, National Institutes of Health, 903 S 4th St., Hamilton, MT **08/2016 – 02/2012**
- Dissertation – “The Ecology of Tick-borne Relapsing Fever in Western North America” – Combined ecological investigations with mathematical modeling and genetics to gain a clearer understanding of the interactions and mechanisms responsible for disease maintenance, distribution, and genetic diversity. The objectives of this research were to: 1) identify mammals associated with *Borrelia hermsii* and *Ornithodoros hermsi* by determining active infection and antibody presence, 2) develop a deterministic model to ascertain ecological and epidemiological parameters essential for disease persistence, 3) resolve the phylogeographic structure of *B. hermsii* and *O. hermsi* to identify dispersal events, and 4) determine the environmental requirements of *B. hermsii* and *O. hermsi*.**
- Biological Technician** – Student Temporary Employment Program (STEP), United States Forest Service, Kiowa and Rita Blanca National Grasslands, 714 Main Street, Clayton, NM **05/2006 – 08/2006**

**GIS Research Technician** – Kansas State University, Department of Geography, 118 Seaton Hall, Manhattan, KS **03/2006 – 05/2006**

**Professional Research Assistant** – University of Colorado, MacAllister Building, Suite S101, 4001 Discovery Drive, Boulder, CO **08/2005 – 03/2006**

**MS Graduate Student** – Kansas State University, Kansas Cooperative Fish and Wildlife Research Unit, 205 Leasure Hall, Manhattan, KS **01/2003 - 05/2005**

**Thesis – “Spatial dynamics of a bacterial pathogen: sylvatic plague in black-tailed prairie dogs” – The objectives of this project were to map prairie dog colonies, identify spatial dynamics of plague, and determine the effects of plague on prairie dog abundance.**

**Biological Technician** – Kansas State University, Kansas Cooperative Fish and Wildlife Research Unit, 205 Leasure Hall, Manhattan, KS **05/2001 - 01/2003**

### PEER REVIEWED PUBLICATIONS

1. Hecht, J, MEJ Allerdice, E Dykstra, L Mastel, RJ Eisen, **TL Johnson**, HD Gaff, A Varela-Stokes, J Goddard, BB Pagac, CD Paddock, SE Karpathy. Multistate survey of American dog ticks (*Dermacentor variabilis*) for *Rickettsia* species. Vector-Borne and Zoonotic Diseases, *In Review*.
2. **Johnson, TL**, CB Graham, SE Maes, A Hojgaard, A Fleshman, KA Boegler, MJ Delorey, KS Slater, SE Karpathy, JKH Bjork, DF Neitzel, EK Schiffman, and RJ Eisen. 2018. Prevalence and distribution of seven human pathogens in host-seeking *Ixodes scapularis* (Acari: Ixodidae) nymphs in Minnesota, USA. Ticks and Tick-borne Diseases, 9(6):1499-1507.
3. Prose, R, NE Breuner, **TL Johnson**, RJ Eisen, and L Eisen. 2018. Impact of permethrin-treated clothing on *Ixodes scapularis*, *Amblyomma americanum* and *Dermacentor variabilis* ticks (Acari: Ixodidae). Journal of Medical Entomology, 55(5):1217-1224.
4. **Johnson, TL**, JKH Bjork, KA Boegler, RJ Clark, MJ Delorey, FM Door, AJ Monaghan, DF Neitzel, EK Schiffman, and RJ Eisen. 2018. An acarological risk model predicting the density and distribution of host-seeking *Ixodes scapularis* nymphs in Minnesota, USA. American Journal of Tropical Medicine and Hygiene, 98(6):1671-1682.
5. Palmer, C, EL Landguth, E Stone and **TL Johnson**. 2018. The dynamics of vector-borne relapsing diseases. Mathematical Biosciences, arXiv:1605.07647v2.
6. Lynn, JE, CB Graham, K Horiuchi, L Eisen, **TL Johnson**, RS. Lane and RJ Eisen. 2018. Prevalence and geographic distribution of *Borrelia miyamotoi* in host-seeking *Ixodes pacificus* (Acari: Ixodidae) nymphs in Mendocino County, California. Journal of Medical Entomology, tjx258, <https://doi.org/10.1093/jme/tjx258>
7. Hahn, MB, JKH Bjork, DF Neitzel, FM Dorr, T Whitmarsh, KA Boegler, CB Graham, **TL Johnson**, SE Maes, and RJ Eisen. 2017. Evaluating acarological risk for exposure to *Ixodes scapularis* and *Ixodes scapularis*-borne pathogens in recreational and residential settings in Washington County, Minnesota. Ticks and Tick-borne Diseases, 9(2):340-348.
8. Sage, KM\*, **TL Johnson\***, MB Teglas, NC Nieto, and TG Schwan. 2017. Ecological niche modeling of the distribution of tick-borne relapsing fever in western North America. PLoS Neglected Tropical Diseases, 11(10):e0006047. \*denotes equal contribution and shared first-authorship
9. **Johnson, TL**, U Haque\*, AJ Monaghan, L Eisen, MB Hahn, M Hayden, HM Savage, J McAllister, J Mutebi, and RJ Eisen. 2017. Modeling the habitat suitability for *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus* in the contiguous United States. Journal of Medical Entomology,

54(6):1605-1614. \*Denotes equal contribution and shared first-authorship

10. **Johnson, TL**, CB Graham, A Hojgaard, NE Breuner, SE Maes, KA Boegler, AJ Replogle, LC Kingry, JM Petersen, L Eisen, and RJ Eisen. 2017. Isolation of the Lyme disease spirochete *Borrelia mayonii* from naturally infected rodents in Minnesota. *Journal of Medical Entomology*, 54(4):1088-1092.
11. **Johnson, TL**, CB Graham, KA Boegler, C Cherry, SE Maes, MA Pilgard, A Hojgaard, DE Buttke, and RJ Eisen. 2016. Prevalence and diversity of tick-borne pathogens in nymphal *Ixodes scapularis* (Acari: Ixodidae), in eastern national parks. *Journal of Medical Entomology* 54(3):742-751.
12. **Johnson, TL**, RJ Fischer, SJ Raffel, and TG Schwan. 2016. Host associations and genomic diversity of *Borrelia hermsii* in an endemic focus of tick-borne relapsing fever in Western North America. *Parasites and Vectors*, 9:575.
13. **Johnson, TL**, E Stone, and EL Landguth. 2016. Modeling Relapsing Disease Dynamics in a Host-vector Community. *PLoS Neglected Tropical Diseases* 10(2):e0004428.
14. **Johnson, TL**, JKH Bjork, DF Neitzel, FM Dorr, EK Schiffman, and RJ Eisen. 2016. Habitat suitability model for the distribution of black-legged ticks, *Ixodes scapularis* (Acari: Ixodidae), in Minnesota. *Journal of Medical Entomology* 53(3):598-606.
15. Boegler, KA, CB Graham, **TL Johnson**, JA Montenieri, KL Gage, and RJ Eisen. 2016. Infection prevalence, bacterial loads, and early-phase transmission efficiency in *Oropsylla montana* (Siphonaptera: Ceratophyllidae) fed across a concentration gradient of *Yersinia pestis* in blood. *Journal of Medical Entomology* 53(3):674-680.
16. **Johnson, TL**, BJ Hinnebusch, KA Boegler, CB Graham, K MacMillan, JA Montenieri, SW Bearden, KL Gage, and RJ Eisen. 2014. *Yersinia* murine toxin is not required for early-phase transmission of *Yersinia pestis* by *Oropsylla montana* (Siphonaptera: Ceratophyllidae) or *Xenopsylla cheopis* (Siphonaptera: Pulicidae). *Microbiology* 160:2517-2525.
17. **Johnson, TL**, JF Cully, Jr., SK Collinge, C Ray, CM Frey, and BK Sandercock. 2011. Spread of sylvatic plague among black-tailed prairie dogs is associated with colony spatial characteristics. *Journal of Wildlife Management* 75(2):357-368.
18. Cully, JF, Jr. \*, **TL Johnson**\*, SK Collinge, and C Ray. 2010. Disease limits populations: plague and black-tailed prairie dogs. *Vector-borne Zoonotic Diseases* 10(1):7-15. \*Denotes equal contribution and shared first- authorship
19. Fischer, RJ, **TL Johnson**, SJ Raffel, and TG Schwan. 2009. Identical strains of *Borrelia hermsii* in mammal and bird. *Emerging Infectious Diseases* 15(12):2064-2066.
20. Augustine, DJ, MR Matchett, TP Toombs, JF Cully, **TL Johnson** and JG Sidle. 2007. Spatiotemporal dynamics of black-tailed prairie dog colonies affected by plague. *Landscape Ecology* 23(3):255-267.
21. Augustine, DJ, JF Cully, Jr. and **TL Johnson**. 2007. Influence of fire on black-tailed prairie dog colony expansion in shortgrass steppe. *Rangeland Ecology and Management* 60(5):538-542.
22. **Johnson, TL** and JF Cully, Jr. 2005. Effects of colony connectivity on the spread of sylvatic plague in black- tailed prairie dogs across the Great Plains. *Second Symposium Proceedings: The History, Ecology, and Economy of the Thunder Basin Prairie Ecosystem*. JB Haufler, Ed.
23. Cully, JF, Jr. and **TL Johnson**. 2005. Annual Report: Prairie dog colonies on five National Grasslands. Presented to U.S. Forest Service, Comanche, Cimarron, Kiowa, Rita Blanca, and Thunder Basin National Grasslands.
24. Cully, JF, Jr. and **TL Johnson**. 2004. Annual Report: Prairie dog colonies on five National Grasslands. Presented to U.S. Forest Service, Comanche, Cimarron, Kiowa, Rita Blanca, and Thunder Basin National Grasslands.
25. Cully, JF, Jr. and **TL Johnson**. 2003. Annual Report: Prairie dog colonies on five National

Grasslands. Presented to U.S. Forest Service, Comanche, Cimarron, Kiowa, Rita Blanca, and Thunder Basin National Grasslands.

26. Cully, JF, Jr. and **TL Johnson**. 2002. Annual Report: Prairie dog colonies on five National Grasslands. Presented to U.S. Forest Service, Comanche, Cimarron, Kiowa, Rita Blanca, and Thunder Basin National Grasslands.
27. Cully, JF, Jr. and **TL Johnson**. 2001. Annual Report: Prairie dog colonies on four National Grasslands. Presented to U.S. Forest Service, Comanche, Cimarron, Kiowa and Rita Blanca National Grasslands.

## ORAL AND POSTER RESEARCH PRESENTATIONS

1. Invited – “Assessing the distribution and diversity of *Ixodes scapularis*-borne pathogens on the western leading edge of the tick’s distribution — Minnesota, USA” Presented at the North American Vector Control Officials Annual Meeting, Fort Collins, CO. May 2018
2. Invited – “Habitat suitability Model for the Distribution of *Ornithodoros hermsi*, a Vector of Tick-borne Relapsing Fever in Western North America” Presented at the International Conference of Relapsing Fever, Lake Arrowhead, CA. April 2016.
3. “Distribution and Diversity of *Borrelia miyamotoi* in Questing *Ixodes scapularis* Larvae in Minnesota, USA” Poster presented at the International Conference of Relapsing Fever, Lake Arrowhead, CA. April 2016.
4. “An Acarological Survey with Implications for *Ixodes scapularis*-borne Diseases in Minnesota.” Presented at the 70th Annual International Conference on Diseases in Nature Communicable to Man, Hamilton, MT. August 2015.
5. “Yersinia Murine Toxin is not Required for Early-phase Transmission of *Yersinia pestis* by *Oropsylla montana* or *Xenopsylla cheopis*” Presented at the 62nd Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC. November 2013
6. “The Potential Distribution of Tick-borne Relapsing Fever in Western North America” Invited poster presented at the Annual IGERT PI conference, Washington, DC. May 2012
7. “Does Host Species Diversity Affect the Prevalence of *Borrelia hermsii*?” Poster presented at the Ecology and Evolution of Infectious Diseases Annual Conference, Cornell University, Ithaca, NY. June 2010
8. “The Ecology of Plague in Rodent Populations.” Presented at the Wildlife Disease Association International Conference, Estes Park, CO. August 2007
9. Invited – “Colony Spatial Dynamics Influence the Transmission of Sylvatic Plague in Black-tailed Prairie Dogs.” Featured Student Presenter, Wildlife Disease Association International Conference, Cairns, Queensland, Australia. June 2005
10. “Landscape Predictors for the Spread of Disease in a Colonial Mammal: Sylvatic Plague in Black-tailed Prairie Dogs.” Poster presented at the Annual Coordinating Committee Meeting, Kansas Cooperative Fish and Wildlife Research Unit, Kansas State University. Manhattan, KS. April 2005
11. “Colony Spatial Dynamics Influence the Transmission of Sylvatic Plague in Black-tailed Prairie Dogs.” Presented at the 31st Annual Graduate Student Research Forum, Division of Biology, Kansas State University. Manhattan, KS. March 2005
12. “Connectivity of Black-tailed Prairie Dog Colony Complexes and the Spread of Sylvatic Plague.” Presented at the Annual Midwest Fish and Wildlife Conference. Indianapolis, IN. December 2004
13. “Drainages as potential corridors for the spread of sylvatic plague in black-tailed prairie dogs.” Presented at the annual meeting of the American Society of Mammalogists, Humboldt State University, Arcata, CA. June 2004.

14. "Effects of Black-tailed Prairie Dog Colony Complex Structure on the Spread of Sylvatic Plague at Thunder Basin National Grassland." Invited presentation at the 2nd Annual meeting of the Thunder Basin Prairie Ecosystem Management Association. Casper, WY. May 2004
15. "Effects of Black-tailed Prairie Dog Colony Complex Structure on the Spread of Sylvatic Plague." Poster presented at the Annual Coordinating Committee Meeting, Kansas Cooperative Fish and Wildlife Research Unit, Kansas State University. Manhattan, KS. April 2004
16. "Connectivity of Black-tailed Prairie Dog Colony Complexes across the Great Plains." Presented at the 30th Annual Graduate Student Research Forum, Division of Biology, Kansas State University. Manhattan, KS. February 2004
17. "Black-tailed Prairie Dogs and Sylvatic Plague: Landscape dynamics of an emerging disease." Poster presented at the annual meeting of the American Society of Mammalogists. Lubbock, TX. June 2003

## GRANTS AND AWARDS

- 2012-2014 – American Society for Microbiology/Centers for Disease Control and Prevention Postdoctoral Research Fellowship (\$46,106/yr)
- 2010 – National Science Foundation Travel Scholarship to attend workshop at the Ecology and Evolution of Infectious Diseases annual workshop and conference, Cornell University, Ithaca, NY (\$500)
- 2009 – Montana Ecology of Infectious Diseases (MEID/NSF-IGERT) Small Grants Program (\$2000)
- 2008-2012 – NIH Intramural Research Training Award (IRTA) Pre-doctoral Fellowship, Rocky Mountain Laboratories, Laboratory of Zoonotic Pathogens, National Institute of Allergy and Infectious Disease, National Institutes of Health
- 2008 – NIH/NIAID-sponsored travel award to attend US-International Association of Landscape Ecology annual conference (\$700)
- 2006-2008 – National Science Foundation Integrative Graduate Education and Research Traineeship (IGERT), Montana Ecology of Infectious Diseases Program, University of Montana (\$30,000/yr)
- 2005 – Wildlife Disease Association Graduate Student Research Recognition Award (\$2500)
- 2005 – Center for Basic Cancer Research, Kansas State University, travel grant (\$250)
- 2004 – Kansas Cooperative Fish and Wildlife Research Unit Outstanding Student Award
- 2004 – Center for Basic Cancer Research, Kansas State University, travel grant (\$250)
- 2004 – Kansas State University Graduate Student Council travel grant (\$250)

## PROFESSIONAL AFFILIATIONS

**Member:** Wildlife Disease Association, Entomological Society of America, American Society of Tropical Medicine and Hygiene, American Association for the Advancement of Science,  
**Peer reviewer:** PloS Neglected Tropical Diseases, Journal of Medical Entomology