

Dr. Steve Murphree

Research Interests

My research group has worked on various topics in medical entomology and field biology. The work typically involves field and laboratory components. Current research has focused on the repellent properties of botanical extracts from members of the mint family (Lamiaceae) to dog ticks (*Dermacentor variabilis*). Another project will compare the biodiversity of nocturnal flying insects using a standard CDC light trap versus a trap equipped with a green LED bulb. A third project will compare the biodiversity of pitfall trapped arthropods in a rare local old-growth forest versus a young forest. Other recent research has helped to better characterize the habitat of conenose bugs (*Triatoma sanguisuga*) towards both attracting and collecting specimens to be tested for the presence of the protist that causes Chagas disease. The latter work has been done in coordination with the State Medical Entomologist's laboratory at the Tennessee Department of Health.

Past research has explored the repellent properties of over-the-counter botanical and synthetic (e.g., DEET) repellents against mosquitoes and compared the biodiversity of arthropods in leaf litter from young versus climax forests and of aquatic arthropods at sample sites above and below a pollution effluent in a river.

Future research might involve studies of a relict population of *Centruroides vittatus*, a scorpion species, in middle Tennessee as well as studies of a trapdoor spider species at Edwin Warner Park.

Publications

Shariat, B.M., Freidmund, J. A., Wright, S.M., Murphree, C.S., and J.T. Thomas. 2007. *Borrelia* Infection Rates in Winter Ticks (*Dermacentor albipictus*) Removed from White-Tailed Deer (*Odocoileus virginianus*) in Cheatham County, Tennessee. *Journal of the Tennessee Academy of Sciences*. 82(3-4):57-61.

Published Abstracts

Alexander, R. S. and C. S. Murphree. 2010. Establishing Criteria to Characterize the Habitat of *Triatoma sanguisuga* in Sylvatic Areas of Middle Tennessee. *Tennessee Academy of Sciences Annual Meeting*. Knoxville, Tennessee. *Journal of the Tennessee Academy of Science* 85 (1): 29 (Student Poster Presentation).

Halchak, D., L. Kim and C. S. Murphree. 2009. Prevalence of *Trypanosoma cruzi* in Conenose Bugs (*Triatoma sanguisuga*) from Selected Peridomestic Areas in Middle Tennessee. *Tennessee Academy of Science Spring 2009 Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 84(3): 62 (Student Presentation).

Kim, L., D. Halchak and C. S. Murphree. 2009. Prevalence of *Trypanosoma cruzi* in Conenose Bugs (*Triatoma sanguisuga*) from Selected Sylvatic Areas in Middle Tennessee. *Tennessee Academy of Science Spring 2009 Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 84(3): 62 (Student Presentation).

Wicke, A. E., C. S. Murphree and A. D. Panvini. 2009. Macroinvertebrate Diversity and Water Quality at a Trout Hatchery Stream Entering the Obey River, Clay County, Tennessee. *Tennessee Academy of Science Spring 2009 Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 84(3): 62 (Student Presentation).

Wicke, A. E., C. S. Murphree and A. D. Panvini. 2009. Macroinvertebrate Diversity and Water Quality at a Trout Hatchery Stream Entering the Obey River, Clay County, Tennessee. *Proceedings of the 13th Symposium on the Natural History of the Lower Tennessee and Cumberland River Valleys*: 102. (Student Presentation).

Halchak, D., L. Kim and C. S. Murphree. 2009. Prevalence of *Trypanosoma cruzi* in Conenose Bugs (*Triatoma sanguisuga*) from Selected Peridomestic Areas in Middle Tennessee. *Tennessee Academy of Science 2009 Annual Meeting, Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 84(1-2): 34 (Student Presentation).

Kim, L., D. Halchak and C. S. Murphree. 2009. Prevalence of *Trypanosoma cruzi* in Conenose Bugs (*Triatoma sanguisuga*) from Selected Sylvatic Areas in Middle Tennessee. *Tennessee Academy of Science 2009 Annual Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 84(1-2): 33 (Student Presentation).

Beck, I.L., Vargo, E. and C.S. Murphree. 2008. Relatedness and Inbreeding in Eastern Subterranean Termite Populations at Montgomery Bell State Park, Dickson County, Tennessee. *Tennessee Academy of Science 2007 Annual Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(1-2): 39 (Student Presentation).

Draper, M. and C.S. Murphree. 2008. Efficacies of Selected Botanically-Derived Biorepellents Against *Aedes aegypti* in Human Volunteer Laboratory Assays. *Tennessee Academy of Science 2007 Annual Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(1-2): 40 (Student Presentation).

Pedigo, C. and C.S. Murphree. 2008. The Efficacy of Selected Over-the-Counter Chemical Repellents Against *Aedes aegypti* in Human Volunteer Laboratory Assays. *Tennessee Academy of Science 2007 Annual Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(1-2): 40 (Student Presentation).

Trump, I.L., Vargo, E. and C.S. Murphree. 2008. Relatedness and Inbreeding in Eastern Subterranean Termite Populations at Montgomery Bell State Park, Dickson County, Tennessee. *Tennessee Academy of Science 2008 Spring Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(3-4): 59 (Student Presentation).

Draper, M. and C.S. Murphree. 2008. Efficacies of Selected Botanically-Derived Biorepellents Against *Aedes aegypti* in Human Volunteer Laboratory Assays. *Tennessee Academy of Science 2008 Spring Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(3-4): 67 (Student Presentation).

Pedigo, C. and C.S. Murphree. 2008. The Efficacy of Selected Over-the-Counter Chemical Repellents Against *Aedes aegypti* in Human Volunteer Laboratory Assays. *Tennessee Academy of Science 2008 Spring Collegiate Division Meeting*, Nashville, Tennessee. *Journal of the Tennessee Academy of Science* 83(3-4): 66 (Student Presentation).

McLaughlin, E., Grammer, R., Thomas, J., and S. Murphree. 2002. Detection of *Borrelia lonestari* in *Amblyomma americanum* Ticks of Sumner County, Tennessee. *Tennessee Academy of Science Spring 2002 Collegiate Meeting*, Clarksville, Tennessee. (Student Presentation).