

# Dr. Darlene Panvini

## Research Interests

Broadly, my research interests lie in three areas: biodiversity, exotic species, and management of public spaces. Conserving and protecting biodiversity requires that we have an understanding of the variety of life that exists in our world. To this end, inventorying and monitoring biodiversity at several scales (species, ecosystems, and landscapes) is a vital part of science. Exotic species are non-native species that inhabit an area and through various ecological and biological factors seem to take over and displace native species. The specifics of how and why this occurs, as well as the long-term impact of this invasion, are not clearly understood. I am especially interested in understanding how morphological and physiological features of exotics might enable them to be effective competitors. Finally, as a society we make decisions on how to allocate resources (money, people, time) to protect public spaces like parks, greenways, and natural areas. I am curious as to the factors that determine this allocation of resources and how much of the decision is based on science versus economic, political, and social factors. The three research interests nicely converge when we consider that management decisions are being made to protect biodiversity in many public spaces while at the same time exotic species threaten the native diversity in these areas. I also work with students on a variety of environmentally-focused research projects that examine factors related to water quality, composting, and human impact on ecosystems. As an ecologist I study a variety of species; while plants have been my primary focus I have also had student projects studying insects, fish, and bacteria. I use a variety of field and lab research techniques to address these questions.

## Published Abstracts

*[Students listed from 2005 until present also presented their research on campus as part of their senior research experience. This includes a poster presentation at the School of Sciences Undergraduate Research Symposium (SURS) in the fall and an oral presentation at the Belmont Undergraduate Research Symposium (BURS) in the spring.]*

Bejma, Julianna and Darlene Panvini. The effects of *Lonicera Maackii* on the diversity of small woody plants at Warner Parks in Nashville, TN.

2011. *Tennessee Academy of Sciences Spring 2011 Middle Tennessee Collegiate Division*. Nashville, Tennessee. [Student oral presentation, **1<sup>st</sup> place winner in Ecology/Geology Section**]

2010. *Tennessee Academy of Sciences 120<sup>th</sup> Meeting*, Cookeville, Tennessee. [Student poster presentation]

Ouellette, Ariel, Darlene Panvini, and Jennifer Thomas. The antimicrobial effects of herbs and spices on gram-positive and gram-negative bacteria.

2011. *Tennessee Academy of Sciences Spring 2011 Middle Tennessee Collegiate Division*. Nashville, Tennessee. [Student oral presentation, **3<sup>rd</sup> place winner in Cellular/Microbiology Section**]

2010. *Tennessee Academy of Sciences 120<sup>th</sup> Meeting*, Cookeville, Tennessee. [Student poster presentation]

Updegraff, Sarah, Melanie Judd, and Darlene Panvini. 2011. The Role of Conservation Photography in Promoting Environmental Issues. [Student oral presentation, *BURS only*]

Melanie Judd and Darlene Panvini. 2010. Effects of Human Influence on the Soil Quality of Eight Different Public Spaces. [Student poster presentation, *SURS only*]

Sarah Updegraff. 2010. Comparison of Water Quality in Two Middle Tennessee Wetlands. [Student poster presentation, *SURS only*]

Walker, Lindsay and Darlene Panvini. 2010. University Composting: A Compilation of Data from 43 Different Schools. *Tennessee Higher Education Sustainability Association Conference*. Nashville, Tennessee. [Student oral presentation]

Walker, Lindsay and Darlene Panvini. 2010. An Examination of closed system compost maturity using three different starting materials: mature compost, soil, and commercial compost starter. *Association of Southeastern Biologists Annual Meeting*. Asheville, North Carolina. [Student oral presentation]

Henton, David and Darlene Panvini. 2008. A Demographic Analysis of the Rainbow Trout Population on the Caney Fork River. *Tennessee Academy of Sciences 118<sup>th</sup> Meeting*. Nashville, Tennessee. [Student poster presentation]

Tummins, April and Darlene Panvini.

2008. Comparison of Photosynthesis and Transpiration Rates in *Lonicera Maackii* and *Symphoricarpos Orbiculatus* in Response to Environmental Factors. *Tennessee Academy of Sciences 118<sup>th</sup> Meeting*. Nashville, Tennessee. [Student poster presentation, **1st Place Winner in Botany Section**]

2009. Water-Use Efficiency in *Lonicera maackii* and *Symphoricarpos orbiculatus* in Response to Increasing Light and CO<sub>2</sub> Levels. *Proceedings of the 13<sup>th</sup> Symposium on the Natural History of Lower Tennessee and Cumberland River Valleys, Land Between the Lakes, Tennessee*. [Student oral presentation]

Nause, Amy and Darlene Panvini.

2008. Diversity of Soil Bacteria Around Native and Exotic Plants. *Tennessee Academy of Sciences Middle Tennessee Collegiate Division*. Nashville, Tennessee [Student oral presentation]

2007. Native Versus Exotic Plant Soil: Identifying the Differences in Soil Bacteria Around Native Plants and Invasive Exotic Plants. *Tennessee Academy of Sciences 117<sup>th</sup> Meeting*. Gallatin, Tennessee. [Student poster presentation, **1st Place Winner in Microbiology Section**]

Neblett, Jill and Darlene Panvini. Examining the Impact of Human Activity on Swan Lake in Dunbar Cave State Natural Area, Montgomery County, Tennessee.

2008. *Tennessee Academy of Sciences Spring Middle Tennessee Collegiate Division*. Nashville, Tennessee. [Student oral presentation, **1st Place Winner in Botany Section**]

2007. *Tennessee Academy of Sciences 117<sup>th</sup> Meeting*. Gallatin, Tennessee. [Student poster presentation]

O'Steen, Annie and Darlene Panvini. Rates of Herbivory on Exotic *Vinca* and Native Goldenseal.

2008. *Tennessee Academy of Sciences Spring Middle Tennessee Collegiate Division*. Nashville, Tennessee. [Student oral presentation]

2007. *Tennessee Academy of Sciences 117<sup>th</sup> Meeting*. Gallatin, Tennessee. [Student poster presentation, **2<sup>nd</sup> Place Winner in Botany Section**]

Osteen, Neeley and Darlene Panvini. 2006. Ecological Impact Of *Lonicera maackii* As Determined By Soil Nutrients, Functional Microbial Diversity, Light, And Herbivory. *Tennessee Academy of Sciences 116<sup>th</sup> Meeting*. Clarksville, Tennessee. [Student poster presentation]

Simpson, Amanda and Darlene Panvini. 2006. Determination Of Soil Nutrients, Microbial Diversity, And Levels Of Herbivory To Assess The Impact Of *Vinca* On A Goldenseal Population. *Tennessee Academy of Sciences 116<sup>th</sup> Meeting*. Clarksville, Tennessee. [Student poster presentation]

Wells, Rejana and Darlene Panvini. 2006. Correlation Of *Lonicera maackii* Density With Soil Nutrients, Microbial Diversity, Light, Herbivory, And Population Growth. *Tennessee Academy of Sciences 116<sup>th</sup> Meeting*. Clarksville, Tennessee. [Student poster presentation]

Stinnett, Amanda and Darlene Panvini. 2006. Allelopathy in the exotic bush honeysuckle, *Lonicera maackii*. *Association of Southeastern Biologists Annual Meeting*. Gatlinburg, Tennessee. [Student poster presentation]

Thomas, Bethany and Darlene Panvini.

2006. Stomatal characteristics in the exotic shrub *Lonicera maackii* compared to the native shrub *Symphoricarpos orbiculatos* in different environmental conditions. *Association of Southeastern Biologists Annual Meeting*. Gatlinburg, Tennessee. [Student poster presentation]

2005. Stomatal Density in the Exotic Shrub *Lonicera maackii* and the Native Shrub *Symphoricarpos orbiculatus* in Different Environmental Conditions. *Tennessee Academy of Sciences 115<sup>th</sup> Meeting*. Martin, Tennessee. [Student Poster presentation, **2<sup>nd</sup> Place Winner for Botany Section**]

Wicks, Kristal, Darlene Panvini, and Jennifer Thomas. 2006. Seasonal rates of photosynthesis and levels of rubisco in exotic and native shrubs and vines of Middle Tennessee. *Association of Southeastern Biologists Annual Meeting*. Gatlinburg, Tennessee. [Student poster presentation]

Wicks, Kristal and Darlene Panvini. 2005. Rates of Photosynthesis in Exotic Shrubs and Vines Compared to Native Shrubs and Vines of Middle Tennessee. *Tennessee Academy of Sciences 115<sup>th</sup> Meeting*. Martin, Tennessee. [Student poster presentation, **1<sup>st</sup> Place Winner for Botany Section**]

Grzeszczak, Aleksandra and Darlene Panvini. 2005. Occurrence of exotic plants in biodiverse areas of Warner Parks: a decade later. [Student oral presentation, *BURS only*]

Furman, Kristin and Darlene Panvini. 2005. The presence of exotic plants in Shelby Bottoms Greenway along paved and unpaved paths. [Student oral presentation, *BURS only*]

Pollard, Jenny and Darlene Panvini. 2006. The impact of exotic *Vinca* on the threatened goldenseal *Hydrastis canadensis*. [Student oral presentation, *BURS only*]

Tabrizi, Bitra and Darlene Panvini. 2004. The highly invasible exotic species. [Student oral presentation, *BURS only*]

Wilburn, Crystal and Darlene Panvini. 2005. Photosynthetic rates of bush honeysuckle and coralberry. [Student oral presentation, *BURS only*]

Yi, Anna and Darlene Panvini. 2004. Exotic plant distribution at homesites and non-homesites at Warner Parks. [Student oral presentation, *BURS only*]