

# JORDAN WILSON, PH.D., P.E.

Jlww98@mst.edu

---

## EDUCATION

Ph.D. in Civil Engineering, Missouri University of Science & Technology, Rolla, MO, December 2017

Dissertation: Vapor Intrusion Risk Assessment by Trees, Advisor: Joel G. Burken

M.S. in Environmental Engineering, Missouri University of Science & Technology, Rolla, MO, May 2013:

Thesis: Distribution And Occurrence Of Escherichia Coli In Water And Sediments At Grand Glaize Beach In Lake Of The Ozarks State Park, Advisor: Joel G. Burken

B.S. in Environmental Engineering, Missouri University of Science & Technology, Rolla, MO, May 2011, Summa Cum Laude

## AWARDS/SCHOLARLY ACTIVITIES

2019 Special Thanks for Achievement (STAR) Award from United States Geological Survey

2016 Student Paper Competition Winner at Battelle's Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds "Phytoforensics: High Density, Low Cost"

2016 Honorable mention Missouri S&T Graduate Research Presentation

2013 3<sup>rd</sup> place in Missouri S&T Chancellors' Fellows Research Conference

2011-2017 Missouri S&T Chancellor's Fellow

2012 Special Thanks for Achievement (STAR) Award from United States Geological Survey

2011 Opportunities in Undergraduate Research Program Recipient

2011 Undergraduate Research Ambassador to the Missouri State Capital

## PROFESSIONAL SOCIETIES

International Phytotechnology Society – Member

American Chemical Society – Member

National Ground Water Association – Member

## WORK EXPERIENCE

Hydrologist, United States Geological Survey, Rolla, MO (May 2013 – Present)

Student Hydrologist, United States Geological Survey, Rolla, MO (May 2011 – May 2013)

Graduate Research Assistant, Missouri S&T, Rolla, MO (September 2012 – May 2013)

Undergraduate Research Assistant, Missouri S&T, Rolla, MO (February 2010 – May 2010)

Contract Researcher, NASA-Ames Research Center, Mountain View, CA (May 2009-August 2009)

Updated: 8/26/19

Student Researcher, NASA-Ames Research Center, Mountain View, CA (January 2009-May 2009)

## PROFESSIONAL LICENSES

Registered Professional Engineer (P.E.) in Missouri (Environmental Engineering/2016/#2016001321)

40-hr HAZWOPER Certified

## SOFTWARE EXPERIENCE

MATLAB	ArcGIS/QGIS	SAS/Systat/JMP	Swift/Java (iOS/Android)
Python	ANSYS	MODFLOW	WellCAD
R	RockWorks	PEST++	Visit/ParaView

## JOURNAL ARTICLES

1. Wilson, J.L., AIWUM version 1.0: An Agricultural Water-Use Model for the Mississippi Alluvial Plain with National Applicability. *Journal of Hydrology: Regional Studies*. **In Review, 2019.**
2. Wilson J.L., Samaranayake V.A., Limmer M.A., Burken J.G., What can trees tell us about the air we breathe at home? *Science Journal for Kids*. **2018.**
3. Limmer, M.A, Wilson, J.L., Burken, J.G., A Tree's Below-Ground Environmental Sampling Volume. *Plant & Soil*. **In Review, 2018.**
4. Limmer, M.A., Wilson, J.L., Westenberg, D., Lee A., Siegman, M., Burken, J., 2018, Phytoremediation Removal Rates of Benzene, Toluene, and Chlorobenzene: *International Journal of Phytoremediation*. **2018**. 20 (7), 666-674. DOI: 10.1080/15226514.2017.1413330.
5. Wilson, J.L., Samaranayake, V.A., Limmer, M., Schumacher, J.G., Burken, J.G., Phytoforensics: Trees as Bioindicators of Potential Indoor Exposure Via Vapor Intrusion. *PlosONE*. **2018**. 13 (2). DOI: 10.1371/journal.pone.0193247.
6. Wilson, J.L., Samaranayake, V.A., Limmer, M., Schumacher, J.G., Burken, J.G., Contaminant Gradients in Trees: Directional Tree Coring Reveals Boundaries of Soil and Soil-Gas Contamination with Potential Applications in Vapor Intrusion Assessment. *Environmental Science and Technology*. **2017**. 51 (24), 14055-14064. DOI: 10.1021/acs.est.7b03466.
7. Wilson, J.L., Limmer, M., Samaranayake, V.A., Schumacher, J.G., Burken, J.G., Tree Sampling as a Method to Assess Vapor Intrusion Potential at a Site Characterized by VOC-Contaminated Groundwater and Soil. *Environmental Science and Technology*. **2017**. 51 (18), 10369-10378. DOI: 10.1021/acs.est.7b02667.
8. Wilson, J.L., Schumacher, J., Burken, J.G., Persistence and Microbial Source Tracking of *Escherichia coli* at a Freshwater Swimming Beach at Lake of the Ozarks State Park, Missouri. *Journal of American Water Resources Association*. **2016**. 52 (2), 508-522. DOI: 10.1111/1752-1688.12404.

9. Wilson, J.L., Bartz, R., Limmer, M.A., Burken, J.G., Plants as Bio-Indicators of Subsurface Conditions: Impact of Groundwater Level on BTEX Concentrations in Trees. *Int. J. Phytorem.* **2013**. 15 (3), 257-267, DOI: 10.1080/15226514.2012.694499.

### TECHNICAL PAPERS (PEER REVIEWED)

1. Barlow, J., Robinson, J., Wilson, J.L., Estimated Groundwater Withdrawals for Agriculture Supply in the Mississippi Delta, 2015 Growing Season. *U. S. Geological Survey Scientific Fact Sheet. In Review, 2019*.
2. Wilson, J.L., Phytoforensics—Using trees to find contamination. **2017**. U.S. Geological Survey Fact Sheet 2017–3076, 2 p. DOI: 10.3133/fs20173076.
3. Wilson, J.L., Remedial Investigation of the Vienna Wells Site: Maries County, Missouri, 2011-2016: Volume I. U.S. Environmental Protection Agency Remedial Investigation Report. **2017**.101 p. Available at <https://semspub.epa.gov/work/07/30307677.pdf>.
4. Wilson, J.L., Remedial Investigation of the Vienna Wells Site: Maries County, Missouri, 2011-2016: Volume II. U.S. Environmental Protection Agency Remedial Investigation Report. **2017**.101 p. Available at <https://semspub.epa.gov/work/07/30307678.pdf>.
5. Wilson, J.L., Schumacher, J., Burken, J.G., Occurrence and Origin of *Escherichia coli* in Water and Sediments at Two Public Swimming Beaches at Lake of the Ozarks State Park, Camden County, Missouri, 2011-13. *U. S. Geological Survey Scientific Investigation Report 2014-5055*. **2014**. 59 p. DOI: 10.3133/sir20145005.

### CONFERENCE PAPERS

- Wilson, J.L., Schumacher, J., Limmer, M., Burken, J.G., Phytoforensics: High Density, Low Cost, Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, CA. May 22-26, 2016.
- Bartz, R., Wilson, J.L., Limmer, M. A., Burken, J. G., Effect of Groundwater Depth on Aerobic Biodegradation of BTEX Using in-planta Measurements, Proceedings of the Bioremediation and Sustainable Environmental Technologies Conference, Reno, NV, 2011, Battelle: Reno, NV, 2011.

### INVITED SPEAKER

- Wilson, J.L.\* , Burken, J.G., *Phytoforensics: Trees as Environmental Samplers and Applications in Vapor Intrusion Assessment*. Indiana Water Monitoring Council. Indianapolis, Indiana. March 14, 2019.
- Wilson, J.L.\* , *Phytoforensics and Applications in Vapor Intrusion Assessment*. National Urban Landscapes Capabilities Team Meeting. New York City, New York. August 22, 2018.
- Burken, J.G.\* , Wilson, J.L., *Plants as Bio-Sentinels and Other Research at Missouri S&T*. University of Western Cape. July 12, 2018.

- Wilson, J.L.\* , Schumacher, J.G., Limmer, M.A., Burken, J.G., *Trees as Indicators of Vapor Intrusion*. U.S. Geological Survey Columbia Environmental Research Center Seminar Series. Columbia, MO. September 6, 2017.
- Wilson, J.L.\* , *Phytoforensics/Phytoscreening: An Overview*. Region 7 United States Environmental Protection Agency. Lenexa, Kansas. February 18, 2016.
- Schumacher, J.G.\* , Wilson, J.L., *Identification of Lead Sources using Lead Isotopes*. Region 7 United States Environmental Protection Agency. Lenexa, Kansas. February 18, 2016.
- Wilson, J.L.\* *USGS-Missouri S&T E. coli Investigations at Lake of the Ozarks State Park*. ENV5605: Environmental Systems Modeling. Missouri University of Science and Technology. Rolla, MO. September 30, 2014.
- Wilson, J.L.\* *An Approach to Understanding E. coli at a Public Swimming Beach in Missouri*. Missouri S&T Biological Sciences Seminar Series. Rolla, MO. February 24, 2014.
- Schumacher, J.\* , Wilson, J.L.\* *Soil and Groundwater Sampling: Without Soil or Groundwater ..."Phytoforensics"*. Missouri Department of Natural Resources Seminar Series. Jefferson City, MO. July 1, 2013.
- Wilson, J.L.\* *Modeling E. coli at Lake of the Ozarks State Park*. ENV5605: Environmental Systems Modeling. Missouri University of Science and Technology. Rolla, MO. September 12, 2012.

## PRESENTATIONS

- Wilson, J.L.\* , *Estimating Aquaculture and Irrigation Water-Use—(AIWUM) version 1.0*. Arkansas State Cooperator Meeting. Little Rock, AR. August 1, 2019.
- Wilson, J.L.\* , *Estimating Aquaculture and Irrigation Water-Use—(AIWUM) version 1.0*. 2019 Arkansas Water Resources Conference. Fayetteville, AR. July 31, 2019.
- Wilson, J.L.\* , *Aquaculture and Irrigation Water-Use Model (AIWUM)*. Mississippi Governor's Delta Sustainable Water Task Force Meeting. Stoneville, MS. April 4, 2019.
- Wilson, J.L.\* , Painter, J., Torak, L., Kress, W., *Estimating Irrigation Water Use in the Mississippi Alluvial Plain, 1999-2017: Aquaculture and Irrigation Water-Use Model (AIWUM) version 1.0*. Mississippi Water Resources Research Institute Conference. Jackson, MS. April 3, 2019.
- Burken, J.G.\* , Wilson, J.L., et. al, *Impacts on Phytoremediation Research at a Global Scale*. 257th ACS National Meeting & Exposition. Orlando, FL. April 3, 2019.
- Burken, J.G.\* , Wilson, J.L., *Phytoforensics for Vapor Intrusion Assessment*. 2019 Remediation Technology Summit. Denver, Colorado. February 27, 2019.
- Wilson, J.L.\* , Schumacher, J.G., *Elevated Lead in Groundwater: Natural or Anthropogenic?*. Geological Society of America 52nd Annual Meeting. Ames, IA. April 16-17, 2018.
- Wilson, J.L., Burken, J.G.\* , *Plants as Bio-Sentinels: What Mother Nature Can Tell Us About Our Exposures*. Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, CA. April 8-12, 2018.

- Westerman, D.\*, Wilson, J.L., Reitz, M., Torak, L., Painter, J., *Reducing Uncertainty in Estimates of Irrigation Water-Use*. 2018 Mississippi Water Resources Conference. Jackson, MS. April 3-4, 2018.
- Westerman, D.\*, Wilson, J.L., Reitz, M., Torak, L., Painter, J., *Irrigation Water-Use in the Mississippi Delta*. Mississippi Governor's Delta Sustainable Water Task Force Meeting. Stoneville, MS. April 5, 2018.
- Burken, J.G.\*, Wilson, J.L., *Detecting Water Pollutants with Plants, Cellphones, Drones, and Citizens*. St. Louis Chapter Environmental and Water Resources Institute. St. Louis, Missouri. November 14, 2017.
- Burken, J.G.\*, Wilson, J.L., *Phytoforensics: Mother Nature as A Witness in Public Health Engineering*. Agency of Toxic Substances and Disease Registry and the Center for Disease Control. October 19, 2017.
- Wilson, J.L.\*, Limmer, M.A., Samaranayake, V.A., Schumacher, J.G., Burken, J.G., *Phytoforensic Approaches to Assess Human Exposure Potential via Vapor Intrusion*. The Association of Environmental Engineering and Science Professors 2017 Conference. Ann Arbor, MI. June 20-22, 2017.
- Wilson, J.L., Schumacher, J.G., Limmer, M.A., Burken, J.G.\*, *Trees as Indicators of Vapor Intrusion*. University of Guelph, Ontario, Canada. June 2017.
- Wilson, J.L., Schumacher, J.G., Limmer, M., Samaranayake, V.A., Burken, J.G.\* *Trees as Indicators of Vapor Intrusion Risk*. 253<sup>rd</sup> American Chemical Society National Meeting. San Francisco, California. April 2-6, 2017.
- Wilson, J.L.\*, Schumacher, J.G., Limmer, M.A., Burken, J.G., *Trees: Novel In-situ Groundwater and Soil-Vapor Monitors*. 10<sup>th</sup> National Water-Quality Monitoring Conference. Tampa, Florida. May 2-6, 2016.
- Limmer, M.A.\*, Wilson, J.L., Holmes, A.J., and Burken, J.G., *Phytomonitoring: In-planta SPME Methods of Chlorinated Solvents in Trees Over 4 Years for Long Term Monitoring and VI Assessment*. Eighth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, CA. February 21, 2016.
- Wilson, J.L., Limmer, M.A., Burken, J.G.\*, *Tree Diameter and Rooting Morphology Impacts on Phytoscreening for Vapor Intrusion Potential*. Society of Environmental Toxicology and Chemistry North America 36<sup>th</sup> Annual Meeting. Salt Lake City, Utah. November, 2015.
- Wilson, J.L.\*, Schumacher, J., Limmer, M.A., Burken, J.G. *Phytoscreening for Vapor Intrusion Potential: Comparing Effects of Tree Diameter*. 12<sup>th</sup> International Phytotechnologies Conference. Manhattan, KS. September 27-30, 2015.
- Limmer, M.A.\*, Wilson, J.L., Westenberg, D., Burken, J.G. *Estimation of Benzene, Toluene and Chlorobenzene Removal Rates by a Phytoremediation Plot*. 12<sup>th</sup> International Phytotechnologies Conference. Manhattan, KS. September 27-30, 2015.

- Burken, J.G.\* , Limmer, M.A., West, D., Wilson, J.L. *Phytoforensic Detection of Subsurface Geochemistry Reactions: Field, Laboratory and Classroom Applications*. 12<sup>th</sup> International Phytotechnologies Conference. Manhattan, KS. September 27-30, 2-15.
- Burken, J.G.\* , Sukharia, R., West, D., Wilson, J.L., Goodwin, T., *Novel Plant Sensing of Landfill Flaws*. 12<sup>th</sup> International Phytotechnologies Conference. Manhattan, KS. September 27-30, 2015.
- Wilson, J.L.\* , Limmer, M.A., Burken, J.G. *Phytoforensics and Novel Passive Samplers to Assess Vapor Intrusion Risk*. 250<sup>th</sup> ACS Conference. Boston, MA. Aug. 16-20, 2015.
- Limmer, M.A.\* , Wilson, J.L., Burken, J.G. *Advances in Phytoremediation: Calculating the Rooting Volume of Trees*. The Association of Environmental Engineering and Science Professors 2015 Conference. New Haven, CT. June 13-16, 2015.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G. *Tracking Sources and Fate of E. coli Contamination at a Lake of the Ozarks Park Public Beach*, 17<sup>th</sup> Annual Mid-American Association of Environmental Engineers Conference. October 20, 2012.
- Wilson, J.L.\* *Occurrence and Origin of E. coli at Grand Glaize Beach at Lake of the Ozarks*, Missouri S&T Chancellor's Fellowship Award Banquet. Rolla, MO. April 2, 2013.
- Wilson, J.L., Bartz, R., Limmer, M.A.\* , Burken, J.G. *Plant Measurements of Aerobic Biodegradation of BTEX: Effect of Groundwater Depth*. 8<sup>th</sup> International Phytotechnologies Conference, Portland, OR. September 13-16, 2011.
- Bartz, R, Wilson, J.L., Limmer, M.A.\* , Burken, J.G. *Effect of Groundwater Depth on Aerobic Biodegradation of BTEX Using In-planta Measurements*, Battelle International Symposium on Bioremediation and Sustainable Environmental Technologies, Reno NV. June 27 – 30, 2011.

## GUEST LECTURES

- Guest Lecturer, Phytoremediation and Natural Treatment Systems: Science and Design. Missouri University of Science and Technology. Rolla, MO. Planned Spring 2020.
- Seminar Lecturer, An Approach to Understanding E. coli at a Public Swimming Beach in Missouri. Missouri S&T Biological Sciences Seminar Series. Rolla, MO. February 24, 2014.
- Guest Lecturer, USGS-Missouri S&T E. coli Investigations at Lake of the Ozarks State Park. ENV5605: Environmental Systems Modeling. Missouri University of Science and Technology. Rolla, MO. September 30, 2014.
- Guest Lecturer, Modeling E. coli at Lake of the Ozarks State Park. ENV5605: Environmental Systems Modeling. Missouri University of Science and Technology. Rolla, MO. September 12, 2012.

## POSTERS

- Wilson, J.L.\* , Kress, W., *Development of a Dynamic Irrigation Water-Use Model within a Hydrologic Decision-Support System in the Mississippi Alluvial Plain, 1999-2017*. SciPy 2019. Austin, TX. July 10, 2019.

- Wilson, J.L.\* *Phytoforensics: High Density, Low Cost*. Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, CA. May 22-26, 2016.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G. *Phytoscreening for Vapor Intrusion Potential: Comparing Effects of Tree Diameter and Type*. Association of Environmental Engineering and Science Professors 2015 Conference. New Haven, CT. June 13-16, 2015.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G., Limmer, M.A. *Occurrence and Origin of E. coli at Grand Glaize Beach at Lake of the Ozarks*, Missouri S&T Chancellor's Fellowship Poster Exhibition, Rolla, MO. April, 2015.
- Limmer, M.A.\* , Wilson, J.L., Burken, J.G. *Phytoforensics: Analytical Techniques for Assessing Plant Contamination*. EmCon 2014. Iowa City, IA. August 19-22, 2014.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G. *Occurrence and Origin of E. coli at Grand Glaize Beach at Lake of the Ozarks*. 18<sup>th</sup> Annual Mid-American Association of Environmental Engineers Conference. St. Louis, MO. September 21, 2013.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G. *Occurrence and Origin of E. coli at Grand Glaize Beach at Lake of the Ozarks*. The 50<sup>th</sup> Annual Association of Environmental Engineering and Science Professors Conference. Golden, CO. July 14-16, 2013.
- Wilson, J.L.\* , Schumacher, J., Burken, J.G. *Occurrence and Origin of E. coli at Grand Glaize Beach at Lake of the Ozarks*, Missouri S&T Chancellor's Fellowship Poster Exhibition, Rolla, MO. April, 2013.<sup>1</sup>
- Wilson, J.L.\* , Bartz, R.\* , Limmer, M.A., Burken, J.G. *Effect of Groundwater Depth on Aerobic Biodegradation of BTEX using In-planta Measurements*, Missouri S&T Undergraduate Research Forum, Rolla, MO. April 6, 2011.<sup>2</sup>
- Wilson, J.L.\* , Bartz, R.\* , Limmer, M.A., Burken, J.G. *Effect of Groundwater Depth on Aerobic Biodegradation of BTEX using In-Planta Measurements*. Undergraduate Research Day at the Capitol, Jefferson City, MO. March 3, 2011.

### **PUBLISHED DATA RELEASES (PEER-REVIEWED)**

- Payne, J.D., Miller, B.V., Kress, W.H., and Wilson, J.L., The use of Continuous Resistivity Profiling to Evaluate Geomorphologic Controls on Aquifer Recharge in the Mississippi Alluvial Plain from Money to Steiner, Mississippi, August 2016 to November 2016. *U.S. Geological Survey data release*. **2017**. DOI: 10.5066/F7J102D4.
- Miller, B.V., Adams, R.F., Stocks, S.J., Wilson, J.L., Smith, D.C., Waterborne resistivity surveys for streams in the Mississippi Alluvial Plain, 2017. *U.S. Geological Survey data release*. **2018**. DOI: 10.5066/F71J98ZQ.

---

<sup>1</sup> 2<sup>nd</sup> Place Poster

<sup>2</sup> 3<sup>rd</sup> Place Poster

- Smith, D.C., and Wilson, J.L., Concentrations of Major and Trace Elements in Streambed and Floodplain Sediment along the Middle Big River and Tributaries in the Southeast Missouri Barite District and in Quality-Assurance Samples, 2012-15: *U.S. Geological Survey data release*. **2018**. DOI: 10.5066/P9OFYN3C.
- Wilson, J.L., Tetrachloroethylene, Trichloroethylene, and 1,1,2-Trichloro-1,2,2-Trifluoroethane Concentrations in Tree-core, Groundwater, and Soil Samples at the Vienna Wells Site: Maries County, Missouri, 2011-2016. *U.S. Geological Survey data release*. **2017**. DOI:10.5066/F71835D8.
- Wilson, J.L., Concentrations of tetrachloroethylene in tree-core, soil, and soil-gas samples at the Vienna Wells site, Vienna, Missouri, 2011-2016. *U.S. Geological Survey data release*. **2017**. DOI:10.5066/F7H70DQ2.
- Wilson, J.L., Concentrations of tetrachloroethylene in tree-core, groundwater, soil, soil-gas, indoor-air, and sub-slab samples from the Tetrachloroethene Southeast Contamination Site in York, Nebraska, 2011-2016. *U.S. Geological Survey data release*. **2017**. DOI:10.5066/F7CF9P06.