WILLIAM "WILL" T. PLUER, PhD, EI

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Geography & Environmental Management
University of Waterloo, Waterloo, ON

EDUCATION

Ph.D. Environmental Engineering, Cornell University May 2018
- Water Resources Engineering focus
- **Dissertation:** Denitrifying bioreactors – Extending applications to stormwater
- **Advisor:** M. Todd Walter

M.S. Biological Engineering, Cornell University May 2015
- **Thesis:** Controls influencing the treatment of excess nitrate with denitrifying bioreactors
- **Advisor:** M. Todd Walter

B.S. Biological Engineering, North Carolina State University May 2012
- Environmental Engineering Concentration
- **Project:** Upflow filtration of stormwater retention basin effluent
- **Advisor:** Bill Hunt
- Semester at Galapagos Academic Institute, Universidad San Francisco de Quito, Ecuador

PEER-REVIEWED PUBLICATIONS

Pluer, W. T., M. Macrae, A. Buckley, & K. Reid. 2020. Contribution of preferential flow to tile drainage varies spatially and temporally. *Vadose Zone J. 19*(1). doi:10.1002/vzj2.20043

Pluer, W. T., M.T. Walter, & S. Steinschneider. 2020. Understanding complex flow pathways within lab-scale denitrifying bioreactors via conservative tracers. *Trans. ASABE. 63*(2). doi:10.13031/trans.13629

Menzies Pluer, E.G., R.L. Schneider, **W.T. Pluer**, S.J. Morreale, & M.T. Walter, 2020. Returning degraded soils to productivity: Water and nitrogen cycling in degraded soils amended with coarse woody material. *Ecol. Eng. 157*. doi:10.1016/j.ecoleng.2020.105986

Christianson, L.E., R. Cooke, C. Hay, M. Helmers, G. Feyereisen, A. Ranaivoson, J. McMaine, R. McDaniel, T. Rosen, **W.T. Pluer**, L. Schipper, H. Dougherty, R. Robinson, I. Layden, S. Irvine-Brown, F. Manca, K. Dhaese, V. Nelissen, & M. Von Ahnen. 2020. Effectiveness of denitrifying bioreactors on water pollutant reduction from agricultural areas. *Trans. ASABE*. doi:10.13031/trans.14011

Macrae, M.L., G.A. Ali, K.W. King, J.M. Plach, **W.T. Pluer**, M. Williams, M.Q. Morison, & W. Tang. 2019. Evaluating hydrologic response in tile-drained landscapes: Implications for phosphorus transport. *J. Environ. Qual. 48*(5), 1347-1355. doi:10.2134/jeq2019.02.0060

Plach, J., **W. Pluer**, M. Macrae, M. Kompanizare, K. McKague, R. Carlow, & R. Brunke. 2019. Agricultural edge-of-field phosphorus losses in Ontario, Canada: Importance of the nongrowing season in cold regions. *J. Environ. Qual. 48*, 813-821. doi:10.2134/jeq2018.11.0418

Pluer, W. T., C.K. Morris, M.T. Walter, & L. Geohring. 2019. Denitrifying bioreactor response during storm flows. *Agri. Water Manag. 213*, 1109-1115. doi:10.1016/j.agwat.2018.12.004

Pluer, W.T., R. Hoffman & M.T. Walter. 2018. Denitrifying bioreactors reduce stormwater nitrogen: A Florida, USA case-study. *J. Sustain. Water Built Environ*. *4*(4), 06018002. doi:10.1061/JSWBAY.0000867

Hassanpour, B., S. Giri, **W.T. Pluer**, T.S. Steenhuis, & L. Geohring. 2017. Seasonal performance of denitrifying bioreactors in the Northeastern United States: Field trials. *J. Environ. Manage. 202*(1), 242-253. doi:10.1016/j.jenvman.2017.06.054

Winston, R.J., W.F. Hunt, & **W.T. Pluer**. 2017. Nutrient and sediment reduction through upflow filtration of stormwater retention pond effluent. *J. Environ. Eng. 143*(5), 06017002. doi:10.1061/(ASCE)EE.1943-7870.0001195

Pluer, W.T., L. Geohring, T.S. Steenhuis & M.T. Walter. 2016. Controls influencing the treatment of excess nitrate with denitrifying bioreactors. *J. Environ. Qual. 45*(3), 772-778. doi:10.2134/jeq2015.06.0271

– **In Review** –

Pluer, W. T., R. Schneider, N. Baker, R. Marino, & M.T. Walter. Enhanced denitrification in roadside ditches with modified denitrifying bioreactors. Manuscript submitted to *Agri. Water Manag.*

Pluer, W.T., J. Plach, D. Price, & M.L. Macrae. Management practices for sequestration of phosphorus from bunker silo effluent. Manuscript prepared for submission to *J. Environ. Qual.*

OTHER PUBLICATIONS

Hassanpour, B., S. Giri, **W.T. Pluer**, T. Steenhuis, & L. Geohring. 2016. Field performance of denitrifying bioreactors in the northeastern United States. *10th Int. Drainage Symp.*, St. Joseph, MI. ASABE. doi:10.13031/IDS.20162493551

Geohring, L., **W.T. Pluer**, & C. Morris. 2016. Denitrifying bioreactors reduction of agricultural nitrogen pollution at the watershed scale. *New York State Water Resources Institute*.

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, University of Waterloo	2018-
Graduate Research Assistant, Cornell University	2012-2018
Visiting Researcher, University of Waikato	2016
Undergraduate Research Assistant, North Carolina State University	2010-12
Environmental Chemistry Intern, Duke Energy	2009-10
Environmental Engineering Intern, INENCO, Inc.	2007-08
High School Researcher, Carolina Sandhills National Wildlife Refuge	2006-08

MENTORING

M. Marshall, University of Waterloo M.S. thesis (minor committee member) 2020
- *Effects of tillage and fertilizer placement on subsurface phosphorus loss following fall manure application over the non-growing season.*

A. Hassan, University of Waterloo undergraduate thesis 2019-20
- *Algae-available phosphorus concentrations in a riparian zone and a constructed wetland soils receiving bunker silo effluent from a dairy farm.*

D. Price, University of Waterloo M.S. thesis 2019-20
- *Phosphorus storage and transport of bunker silo effluent through a riparian zone.*

S. Degaetano, Cornell University undergraduate thesis 2015
- *Nonpoint source road salt pollution from urban stormwater.*

S. Powers, Cornell University M.Eng thesis 2013
- *Nitrate reduction and phosphate uptake in lab-scale denitrifying bioreactors with woodchip and biochar media.*

Men's Club Volleyball Coach, Cornell University 2013-18
- Gold Finalist, 2017 NCVF Collegiate Club Championships, Division DIAA

Enviro-Mentor, Cornell University 2013-16
- Undergraduate mentoring program for students interested in environmental science and research professions.

TEACHING

Environmental Hydrology Course Instructor, University of Waterloo 2019

Watershed and Landscape Engineering Course Instructor, Cornell University 2018

Water Measurement and Analysis Graduate Teaching Assistant, Cornell University 2015,2016

Watershed Engineering Graduate Teaching Assistant, Cornell University 2013

Watershed and Landscape Engineering Graduate Teaching Assistant, Cornell University 2017

Endangered Ecosystems of the Southeast Course Instructor, NC State University 2011

GRANTS & HONORS

Outstanding Student Poster, American Society of Agricultural and Biological Engineers Annual International Meeting 2017

Cornell Student Research Grant, Spencer Fund ($2,500) 2016

International Travel Grant, NSF IGERT in partnership with Louis Schipper at University of Waikato, Hamilton, New Zealand ($6,825) 2016

USGS 104(b) Research Grant, New York State Water Resources Institute ($9,964) 2015

Cornell Student Research Grant, NSF Cross-Scale Biogeochemistry and Climate ($4,000) 2015

Student Moderator, Soil & Water Conservation Service Annual Conference 2014

Travel Scholarship, Universities Council on Water Resources	2014
Cornell Student Research Grant, NSF Cross-Scale Biogeochemistry and Climate ($4,000)	2013
Honorable Mention, NSF Graduate Research Fellowship	2012
Graduate Fellowship, Au Sable Institute	2012-18
Caldwell Fellowship	2009-12
Engineering Intern - NCEES Fundamentals of Engineering Exam	Fall 2011

ORAL & POSTER PRESENTATIONS

Pluer, W., M. Macrae, J. Elliott, H. Wilson, K. Vivekananthan. Climate change at the field-scale: Comparing projections and observations across regions. *Poster Presentation.* Global Water Futures Annual Meeting. June 2020.

Pluer, W.T., Macrae, M., & Reid, K. Spatiotemporal variation in preferential flow contributions to tile drainage. *Oral Presentation.* Canadian Geophysical Union Meeting, Montreal, QC. July 2019.

Macrae, M., Baulch, H. Elliott, J., Gordon, R., Kompanizare, M., Liu, J., Lobb, D., Plach, J., **Pluer, W.**, Pomeroy, J., and H. Wilson. Managing phosphorus losses from agricultural fields in regions with cold climates. *Oral Presentation.* July 2019.

Pluer, W., & Macrae, M. Edge-of-field research in Ontario: Can BMPs affect phosphorus losses? *Invited Oral Presentation*. Grain Farmers of Ontario Meeting, London, ON. January 2019.

Plach, J., **Pluer, W.**, Macrae, M., Kompanizare, M., McKague, K., Carlow, R., & Brunke, R. Phosphorus losses from agricultural fields in Ontario, Canada: Implications for land management efficacy in cold regions. *Poster Presentation.* American Geophysical Union Fall Meeting, Washington, D.C. December 2018.

Pluer, W., Plach, J., Kompanizare, Carlow, R., M., Macrae, M., Brunke, R., & McKague, K. When and how does phosphorus runoff fields? *Poster Presentation.* Global Water Futures Stakeholders Workshop, Waterloo, ON. December 2018.

Pluer, W.T. & Walter, M.T. Nitrate removal rates in denitrifying bioreactors during storm flows. *Poster Presentation.* American Geophysical Union Fall Meeting, New Orleans, LA. December 2017.

Pluer, W.T., Schneider, R., Baker, N., Marino, R., & Walter, M.T. Enhanced denitrification in road ditches with bioreactors. *Poster Presentation.* American Society of Agricultural and Biological Engineers Annual International Meeting, Spokane, WA. July 2017.

Pluer, W., Schneider, R., Marino, R., & Walter, M.T. Enhanced denitrification in road ditches with bioreactors. *Poster Presentation.* American Geophysical Union Fall Meeting, San Francisco, CA. December 2016.

Pluer, W.T., Hoffman, R., & Walter, M.T. Submerged denitrifying bioreactors reducing nitrate in stormwater ponds. *Oral Presentation*. Environment & Water Resources Institute Congress, Palm Beach, FL. July 2016.

Pluer, W.T., Geohring, L., & Walter, M.T. Denitrifying bioreactors: Design factors for extending application. *Oral Presentation (invited)*. National Institute of Water and Atmospheric Research, Hamilton, New Zealand. February 2016.

Pluer, W.T., Walter, M.T., & Geohring, L. Trace gas emissions from denitrifying bioreactors: Lab and field scales. *Oral Presentation*. American Society of Agricultural and Biological Engineers Annual International Meeting, New Orleans, LA. July 2015

Pluer, W.T., Walter, M.T., & Geohring, L. Trace gas emissions from denitrifying bioreactors: Lab and field scales. *Poster Presentation.* American Geophysical Union Fall Meeting, San Francisco, CA. December 2014.

Pluer, W.T., Walter, M.T., & Geohring, L. Trace gas emissions from denitrifying bioreactors: Lab and field scales. *Oral Presentation*. Universities Council on Water Resources Water Systems, Science, and Society under Global Change Conference, Medford, MA. June 2014.

Geohring, L., **Pluer, W.T.**, & Walter, M.T. Using denitrifying bioreactors to treat subsurface drainage discharges. *Oral Presentation*. Soil & Water Conservation Service International Annual Conference, Chicago, IL. July 2014.

Pluer, W.T., Geohring, L., & Walter, M.T. Greenhouse gas emissions from denitrifying bioreactors. *Poster Presentation.* American Geophysical Union Fall Meeting, San Francisco, CA. December 2013.

Pluer, W.T., Geohring, L., & Walter, M.T. Greenhouse gas emissions from in-situ denitrifying bioreactors. *Poster Presentation.* Susquehanna River Basin Commission Management Conference, Harrisburg, PA. October 2013.

Pluer, W.T., Geohring, L., & Walter, M.T. Nitrate removal in denitrifying bioreactors. *Poster Presentation.* Upper Susquehanna Coalition Program Management meeting, State College, PA. April 2013.

Abert, J., Clemmons, J., **Pluer, W.**, & Snyder, D. Upflow filtration of wet detention basin effluent for phosphate removal. *Oral Presentation*. North Carolina State University Biological and Agricultural Engineering Symposium, Raleigh, NC. May 2012.

SERVICE & AFFILIATIONS

American Civil Engineers Society (ASCE)

American Geophysical Union (AGU)

American Society of Agricultural and Biological Engineering (ASABE)

Au Sable Graduate Fellow

Big Brothers Big Sisters of America

Cornell Biogeochemistry, Environmental Science, & Sustainability Group: President, Seminar Committee Chair

Reviewer for: Agricultural Water Management; Journal of Ecological Engineering; Journal of Environmental Quality; Journal of Hydrology; Marine and Freshwater Research; Transactions of the ASABE