

## Curriculum Vitae for Kristopher D. Barnswell

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**Curriculum:** M.S. (2005) Biology  
B.S. (2003) Environmental Sciences

### Employment:

2003 Research Assistant, Department of Environmental Sciences, University of Toledo, Toledo, OH

### Education:

Current Ph.D. (University of Toledo), Dissertation: "Determining preliminary design components for a landfill evapotranspiration cover", Advisor: Prof. Daryl F. Dwyer

2005 M.S. (University of Toledo), Thesis: "Phytoremediation potential at an inactive landfill in northwest Ohio", Advisor: Prof. Daryl F. Dwyer

2003 B.S. (University of Toledo), Activities: Baseball

### Awards:

2009 Fellowship, National Science Foundation GK-12

### Research Experience:

Alternative Landfill Covers, Field Botany, Restoration Ecology, Soil Science

### Societies of Interest:

International Association of Great Lakes Research, Society for Ecological Restoration International

### Recent Research Projects:

Research goals center on developing strategies for remediation and restoration of an inactive landfill located in northwest Ohio. Projects include:

1. The selection process of plant species appropriate for a landfill evapotranspiration cover.  
Primary objectives:
  - (a) identify the prevalent plant species at the King Road Landfill, Sylvania, Ohio - *completed*
  - (b) determine the pathway of vegetation development on the landfill – *completed*
  - (c) evaluate transpiration rates for selected plant species using greenhouse experiments – *in progress*
2. The selection process of soil appropriate for a landfill evapotranspiration cover.  
Primary objectives:

(a) evaluate biomass production by native plant species in (i) locally abundant soil and (ii) formulated soil constructed with dredged material and structure-improving agents – *completed*

3. The development of an evapotranspiration cover.  
Primary objectives:

(a) monitor the water balance of small-scale evapotranspiration covers in field lysimeters – *in progress*

(b) compare percolation rates to EPA requirements for landfill covers

(c) contrast to data collected by alternative landfill cover studies

(d) simulate long-term performance using computer-based models

#### **Invited Speaker:**

1. Remediation and restoration of the King Road Landfill located in northwest Ohio. 2006. Conservation Biology field-trip to the King Road Landfill, University of Toledo, Sylvania, OH.
2. Restoration ecology in northwest Ohio. 2008. Conservation Biology field trip to Stranahan Arboretum University of Toledo, Sylvania, OH.

#### **Symposia/Workshop:**

1. Session Chair “Pharmacy and Medical Science”, 2006: Twenty-sixth Annual Sigma Xi Student Research Symposium, Toledo, OH. April
2. Judge, 2006 and 2009: Northwest Ohio Science Fair, Toledo, OH.

#### **Teaching:**

1. Phytoremediation: an investigative field approach to developing a new technology. Lake Erie Center Summer Environment Research Institute. University of Toledo – Lake Erie Center, Oregon, OH, 2007.

#### **Publications:**

1. Barnswell, K.D., and Dwyer, D.F. Vascular flora of the King Road Landfill in northwest Ohio. *Ohio Journal of Science*, 107: 91-103.
2. Barnswell, K.D., and Dwyer, D.F. Selection of plant species for a landfill evapotranspiration cover. *In preparation*.
3. Barnswell, K.D., and Dwyer, D.F. Manufactured soil for a landfill evapotranspiration cover using dredged sediment. *In preparation*.

#### **Abstracts of Posters and Presentations:**

1. Barnswell, K.D., and Dwyer, D.F. (2006). Potential use of evapotranspiration covers in northwest Ohio. Oak Openings Region Research Symposium. Toledo, OH. January 20-21. (Poster)

2. Barnswell, K.D., and Dwyer, D.F. (2005). Vegetation on a non-capped landfill in the Oak Openings Region. Twenty-fifth Annual Sigma Xi Student Research Symposium, University of Toledo. Toledo, OH. April 16. (Platform)
3. Barnswell, K.D., Rofkar, J., and Dwyer, D.F. (2004). Phytoremediation at the King Road Landfill: current progress and future work. Twenty-fourth Annual Sigma Xi Student Research Symposium, University of Toledo. Toledo, OH. April 24. (Poster)
4. Barnswell, K.D., and Dwyer, D.F. (2008). Vascular plants of the King Road Landfill, Lucas County, Ohio. 117<sup>th</sup> Annual Meeting, Ohio Academy of Sciences. Toledo, OH, April 11- 13. (Platform)
5. Barnswell, K.D., and Dwyer, D.F. (2008). Manufactured soil for a landfill evapotranspiration cover using dredged sediment. 29<sup>th</sup> Annual Meeting, Sigma Xi Research Symposium, Toledo, OH, November 1. (Poster)
6. Barnswell, K.D., and Dwyer, D.F. (2009) Manufactured soil for a landfill evapotranspiration cover using dredged sediment. 10<sup>th</sup> International In Situ and On-Site Bioremediation Symposium, Presented by Battelle. Baltimore, MD, May 5-8. (Poster)
7. Duncan, A.M., Gorr, M.W., Rofkar, J.R., Barnswell, K.D., Gottgens, J.F., and Dwyer, D.F. (2009). Plant-mediated reductions of arsenic levels in flow-through wetland microcosms. 52<sup>nd</sup> Annual Conference on Great Lakes Research, International Association for Great Lakes Research, Toledo, Ohio, May 18-22. (Poster)
8. Rofkar, J., Duncan, A., Barnswell, K., Armenio, P., Frantz, J., and Heckathorn, S. (2009). Effects of nitrogen on boron toxicity in *Azolla caroliniana*. 52<sup>nd</sup> Annual Conference on Great Lakes Research, International Association for Great Lakes Research, Toledo, Ohio, May 18-22. (Poster)

updated 8/20/09