



CURRICULUM VITAE

ROBERT W. NAIRN

David L. Boren Professor

Sam K. Viersen Family Foundation Presidential Professor

Director, Center for Restoration of Ecosystems and Watersheds

Associate Director, Water Technologies for Emerging Regions Center

Adjunct Professor, Department of Biology



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PROFESSIONAL EXPERIENCE

Academic Appointments

1997-present **The University of Oklahoma, School of Civil Engineering and Environmental Science**

2017-present, David L. Boren Distinguished Professor

2014-present, Sam K. Viersen Family Foundation Presidential Professor

2012-present, Professor

2011-present, Adjunct Professor, Department of Biology (formerly Zoology)

2002-2012, Associate Professor

1997-2002, Assistant Professor

1992-1996 **The Ohio State University, Environmental Science Graduate Program**

1995-96, Presidential Fellow, The Graduate School

1992-95, Graduate Research and Teaching Associate, Environmental Science Graduate Program and School of Natural Resources, Olentangy River Wetland Research Park

Related Academic Positions (at the University of Oklahoma)

2017-present Faculty Associate, Water-Energy-Food Institute

2016-present Faculty Associate, Environmental Studies Program

2013-2014 Visiting Research Scientist (Sabbatical Leave of Absence)

Grand River Dam Authority, Ecosystems and Education Center, Langley, OK

2007-present Associate Director, Water Technologies for Emerging Regions Center

2004-present Director, Center for Restoration of Ecosystems and Watersheds

2004-present Faculty Associate, Ecology and Evolutionary Biology Program

2004-present Faculty Associate, Aquatic Research Facility

2003-2008 Faculty Associate, Institute for Oklahoma Technology Applications

1999-present Summer Teaching Faculty, University of Oklahoma Biological Station

1998-2015 Faculty Associate, Interdisciplinary Perspectives on the Environment Program

Other Full-time Professional Experience

1989-1992 Research Biologist, U.S. Department of Interior, Bureau of Mines, Pittsburgh Research Center, Pittsburgh, PA

Other Part-time or Project-based Professional Experience

2000-present Environmental Scientist, CC Environmental, LLC, Norman, OK

1998-present Principal, Robert Nairn Environmental Consulting, Norman, OK

- 1996-1997 Environmental Scientist, Hedin Environmental, Inc., Pittsburgh, PA
 1994-1996 Environmental Scientist, Mitsch and Associates, Inc., Columbus, OH
 1989 Environmental Scientist, Civil and Environmental Consultants, Inc., Pittsburgh, PA
 1988 Undergraduate Research Associate, U.S. Department of Energy, Brookhaven National Laboratory, Upton, NY

Related Volunteer Leadership Experience

- 2017-2018 President, Board of Directors, Engineers-In-Action
 2012-2015 President (Incoming, Current, and Past), American Society of Mining and Reclamation
 2008-present Member, Board of Directors, Engineers-In-Action
 2004-present President, Watershed Restoration Inc.
 2003-2005 Member, National Executive Committee, American Society of Mining and Reclamation

EDUCATION

Degrees Earned

- 1996 **Ph.D. Environmental Science**, The Ohio State University, Columbus, OH
 Dissertation: *Biogeochemistry of Newly Created Riparian Wetlands: Evaluation of Water Quality Changes and Soil Development* (Advisor: W.J. Mitsch)
 1989 **B.S. Environmental Science**, Juniata College, Huntingdon, PA
 B.S. Thesis: *Environmental Monitoring of Surface and Ground Water Resources at Brookhaven National Laboratory, Long Island, New York* (Advisors: T. Gustafson and R. Fisher)

Additional Academic Study

- 1990 University of Pittsburgh, Graduate School of Public Health, Pittsburgh, PA
 1988 University of Montana, Flathead Lake Biological Station, Polson, MT
 1984 Geneva college, high school advanced biology program, Beaver Falls, PA

HONORS AND AWARDS

Professional Career

- David L. Boren Distinguished Professorship, University of Oklahoma, 2017
"recognizing... truly exceptional contributions to the mission of a public research university... consistently demonstrated outstanding teaching, research and creative activity, and leadership or service... represent the best of the OU spirit... caring for students, advancing the frontiers of knowledge, and making a positive difference in the world"
 William T. Plass Award, American Society of Mining and Reclamation, 2017
"reflecting outstanding contributions in the areas of mining, teaching, research, and/or regulatory or environmental consulting as it relates to land reclamation"
 Faculty Leadership Academy, Inaugural Class, University of Oklahoma, 2015-16
 Sam K. Viersen Family Foundation Presidential Professorship, University of Oklahoma, 2014
 Sixteenth Annual Gene Degruson Memorial Lecturer, Pittsburg State University (Kansas), 2013
 Outstanding Research Impact Award, University of Oklahoma Vice President for Research, 2012
"for research, scholarship, and/or works of creative activity and expression that have made a notable impact on culture, individuals, communities, organizations, field(s) of inquiry, industry, education"
 Richard I. and Lela M. Barnhisel Reclamation Researcher of the Year Award, American Society of Mining and Reclamation, 2011
"for demonstrating substantive contributions to the advancement of reclamation science and/or technology through scientific research"

United Way Volunteer of the Year Award (Service to Education/Youth), United Way of Norman, 2011
(co-awarded to K.A. Nairn)
Williamson Family Colloquium Series Invited Lecturer, University of Missouri, 2010
Faculty Senate Development Award, University of Oklahoma, 2007
Mike Synar Environmental Excellence Award, Local Environmental Action Demanded, 2007
College of Engineering Outstanding Faculty Adviser Award, University of Oklahoma, 2004
University Visiting Lecturer, University of Nebraska-Lincoln, 2003
Larry W. Canter Influencing Environmental Interest Award, University of Oklahoma, 2000, 2002, 2003,
2016 (selected by undergraduate students in home academic unit)
Oklahoma Public Health Excellence Award, University of Oklahoma Health Sciences Center College of
Public Health, 2000 (awarded to 19 students and three faculty advisors)
Alpha Phi Omega Leadership Award for Outstanding Teaching, University of Oklahoma, 1999
Presidential International Travel Fellowship, University of Oklahoma, 1998, 2008, 2016
National Research Council Young Investigators Program Fellowship, U.S. Department of State, 1997
Junior Faculty Research Fellowship, University of Oklahoma, 1997
American Society of Limnology and Oceanography Dissertations Initiative for the Advancement of
Limnology and Oceanography (DIALOG II) Fellowship, 1997
Best Technical Publication, U.S. Bureau of Mines, 1990, 1995
Outstanding Performance Award, U.S. Bureau of Mines, 1990, 1991, 1992
Special Achievement Awards, U.S. Bureau of Mines, 1990, 1991, 1992
Special Act Awards, U.S. Bureau of Mines, 1990, 1991, 1992
Secretary's Stewardship Award for Science and Technology, U.S. Department of Interior, 1990

Graduate Study

Presidential Fellowship, The Ohio State University, 1995-96
Society of Wetland Scientists Graduate Student Best Poster Award, 1995
Water Environment Federation Robert A. Canham Scholarship Finalist, 1995
Graduate Student Alumni Research Award, The Ohio State University, 1995
Phi Kappa Phi Graduate Enrichment Award, The Ohio State University, 1995
Sigma Xi Graduate Student Research Award, The Ohio State University, 1995
Graduate Student Travel Award, The Ohio State University, 1995, 1996

Undergraduate Study

Science and Engineering Research Semester, U.S. Department of Energy, 1988
Bertha Stieg-Evans Environmental Scholarship, Juniata College, 1985-89
Brumbaugh-Ellis Presidential Scholarship, Juniata College, 1985-89
Dean's List, Juniata College (≥ 3.6 GPA), Spring, Summer, Autumn 1988
Aliquippa Women's Club Scholarship, 1985

Honor Societies

Sigma Xi Scientific Research Society
The Honor Society of Phi Kappa Phi
Beta Beta Beta National Biological Honor Society
Juniata College Honor Society

Other Honors

Larry F. Blaney Conservation Award, Hopewell High School, 1985
Eagle Scout (with Silver Palm), Boy Scouts of America Troop 486, 1983

RESEARCH GOAL AND SUMMARY

The overall goal my research efforts is to develop comprehensive and sustainable solutions to intractable environmental degradation problems using natural infrastructure. Most of my work falls into two broad categories: watershed biogeochemistry and ecological engineering. Areas of emphasis include: surface and ground water quality and hydrology; soil and sediment quality; ecosystem remediation and restoration; wetland ecology and biogeochemistry; wetland creation and restoration; design and construction of ecosystems, especially passive treatment systems for mine water quality improvement, green infrastructure for storm water quality and quantity management, and similar technologies leading to water reuse and sustainable water management; disturbed land reclamation, remediation and restoration including stream and riparian corridor management; environmental education and service learning.

RESEARCH MENTORING

My research mentoring demonstrates a commitment to diversity and inclusion in STEM. Thus far, 60% of all research advisees are female and 28% are members of underrepresented groups.

Research Scientists

2. Page, Bryan J. 2017-2018. Field-based research on mine drainage passive treatment system operation and maintenance technology development
1. LaBar, Julie A. 2007-2010. Analytical laboratory management and oversight, independent watershed biogeochemistry and ecological engineering research

Post-doctoral Researchers

2. Kellogg, Chever H. 2006-2007. Ecological and biogeochemical development in depressional wetlands and passive treatment systems
1. O'Sullivan, Aisling D. 2001-2003. Ecological treatment systems for mine drainage water quality improvement

Visiting Scholars

2. Zhang, Mingliang. 2017-2018. Optimization of performance of sulfate-reducing bioreactors for mine drainage treatment; supported by China Scholarship Council
1. Gu, Jiao. 2016-2017. Independent reservoir eutrophication and ecological restoration research; supported by University of Chinese Academy of Sciences

Completed Graduate Students (40 total: 6 PhD, 27 MS thesis, 7 MS special topics)

40. Shepherd, Nicholas L. 2017. The Effects of *Castor canadensis* (North American Beaver) Colonization on a Mine Drainage Impacted Stream, MS thesis (civil engineering – water resources), 203 pp.
39. Fielding, Ellen. 2017. Sorption and Release of Nickel and Zinc Using a Mixed Algae Community Collected from a Mine Drainage Passive Treatment System, MS thesis (environmental engineering), 65 pp.
38. Thornton, Erin. 2017. Microcosm Assessment of Natural Processes Affecting Chemicals of Emerging Concern in Secondary Effluent, MS thesis (environmental engineering), 74 pp.
37. Oxenford, Leah R. 2016. Iron Transport and Removal Dynamics in the Oxidative Units of a Passive Treatment System, PhD dissertation (environmental science), 141 pp.
36. Page, Bryan J. 2016. Quantifying Hydraulic Conductivity in Mine Drainage Passive Treatment System Vertical Flow Bioreactors, MS thesis (environmental science), 86 pp.

35. Holzbauer-Schweitzer, Brandon K. 2016. Evaluating Low Impact Development Best Management Practices as an Alternative to Traditional Urban Stormwater Management, MS thesis (environmental science), 131 pp.
34. LaBar, Julie A. 2016. Determination and Prediction of Products of Trace Metal Removal in Laboratory and Field Scale Vertical Flow Bioreactors, PhD dissertation (environmental science), 133 pp.
33. Arango Calderon, Juan G. 2015. Prediction of Secchi Disk Measurements in Grand Lake o' the Cherokees, Lake Hudson and Lake Texoma Using Landsat 7 Images, MS thesis (civil engineering – water resources), 142 pp.
32. Dutnell, Russell C. 2015. Investigation of the Hydrology, Fluvial Geomorphology and Sediment Transport in the Lake Thunderbird Watershed in Central Oklahoma, PhD dissertation (environmental engineering), 414 pp. (co-advised with R. Kolar)
31. Rice, Michael. 2015. An Evaluation of Retrofitting Best Management Practices for Stormwater Quality Improvement, MS special topics (environmental engineering), 35 pp.
30. Furneaux, Brendan. 2014. Biodiversity Assessment of an Ecological Engineered Treatment System for Metals-Contaminated Mine Drainage, MS thesis (environmental engineering), 164 pp.
29. Brumley, Jessica. 2014. Application of Ecosystem Energetic Indicators for the Evaluation of Ecosystems Services and Health, PhD dissertation (environmental science), 130 pp.
28. Yopez, Sarah A. 2012. Nuisance Constituent Export from a Mine Drainage Passive Treatment System, MS thesis (environmental science), 114 pp.
27. Smith, Alea D. 2011. Treatment Wetlands for Wastewater Management in Developing Countries, MS special topics (environmental science), 39 pp.
26. McAllister, Jennifer M. 2011. Metal Uptake and Accumulation of Emergent Macrophytes in Communities of Varied Biodiversity, MS thesis (environmental science), 87 pp.
25. Andrews, William J. 2011. Plant Uptake, Time Trends and Natural Attenuation of Selected Metals in an Abandoned Mining District, PhD dissertation (environmental science), 130 pp.
24. Brewer, Alex J. 2010. Evaluation of Risk Posed by Traditional Uses of Plants in a Mining Impacted Landscape, MS thesis (environmental science), 83 pp.
23. Santamaria, Beatriz E. 2010. Evaluating Longevity of Vertical Flow Cells through Water Quality and Substrate Analysis, MS thesis (environmental engineering), 202 pp.
22. Neely, Cody A. 2010. Characterization and Possible Sustainable Sorbent Use of Iron Oxides from Abandoned Mine Drainage Discharges, MS thesis (environmental engineering), 150 pp.
21. Garrido, Alan E. 2010. Acid Mine Drainage Impacts on Irrigation Water, Agricultural Soils and Potato Tubers, and Human Health Risk Evaluation in Rural Communities of the Bolivian Andes, MS thesis (environmental engineering), 107 pp.
20. Strosnider, William H.J. 2010. Augmenting the Applicability and Efficiency of Ecological Engineering Solutions for Water Quality Improvement, PhD dissertation (environmental engineering), 222 pp.
19. Lutes, Darcy L. 2009. Assessment of Metal Bioavailability and Toxicity in Mine Drainage Systems, MS thesis (environmental science), 106 pp.
18. Roberts, MaKenzie M. 2008. Characterizing Passive Treatment Systems Using Molecular Techniques, MS thesis (environmental science), 116 pp.
17. Hensley, Dave M. 2007. Mussels as Passive Water Filters, MS thesis (environmental science), 56 pp.
16. LaBar, Julie A. 2007. Fate and Transport of Contaminants from Mining Waste Materials in Surface and Ground Water Environments, MS thesis (environmental science), 136 pp.
15. White, Rebecca L. 2006. Revegetation of Abandoned Pb-Zn Tailings Impoundments with Native Tall Grass Prairie Vegetation, MS thesis (environmental science), 229 pp.

14. Gause, Christina F. 2006. Environmental Analyses of Mining Waste Materials Used in Asphalt, MS thesis (environmental science), 151 pp.
13. Traw, Tyson L. 2006. Engineering Design Report for the Robson Ranch Offsite Water Line, MSCE special topics (civil engineering - water resources), 68 pp.
12. Coffey, Jennifer. 2004. Natural Resource Damage Assessment Case Study of the Tar Creek Superfund Site, MS special topics (environmental science), 20 pp.
11. Porter, Clint M. 2004. Impacts of Treated and Untreated Coal Mine Drainage on Biological Organization and Evaluation of Ecosystem Functions in a Constructed Treatment Wetland, MS thesis (environmental science), 241 pp.
10. Athay, Denae. 2003. Water Quality and Substrate Analysis of an Acid Mine Drainage Treatment Wetland System, MS thesis (environmental science), 191 pp.
9. Winter, Benjamin. 2003. Tire Mattress Effectiveness on Oklahoma Stream Bank Restoration and Stabilization, MS thesis (environmental science), 115 pp.
8. Iverson, Niki J. 2003. Ecological Assessment of Three Oklahoma Streams Impacted by Mine Drainage, MS thesis (environmental science), 264 pp.
7. Arvidson, Virginia B. 2003. Zinc Retention Using Limestone and Mining Waste Rock in Closed Reactors, MS thesis (environmental science), 140 pp.
6. Garrett, Russell A. 2003. Passive Treatment System Preliminary Engineering Design, MS special topics (environmental science), 25 pp.
5. DuBois, Christopher R. 2002. A Comparative Evaluation of Wetland Assessment Methods for Use in Oklahoma, MS thesis (environmental science), 228 pp.
4. Breetzke, Erin E. 2000. Development and Implementation of a Wetland Volunteer Monitoring Pilot Program, MS thesis (environmental science), 300 pp.
3. Mercer, Matthew N. 2000. Evaluating the Performance of Acid Mine Drainage Treatment Wetlands Supplemented with Coal Combustion Products and Alternative Organic Substrates, MS thesis (environmental science), 185 pp.
2. Walker, F. Richard. 1999. Industrial Waste Pit #1 at Tinker Air Force Base, Oklahoma: Why *Ex Situ* Disposal? MS special topics (environmental science), 54 pp.
1. Halstead, Jennifer L. 1999. Using Environmental Laws and Federal Funding to Remedy Wastewater Problems: Oklahoma's Clean Water State Revolving Loan Program, MS special topics (environmental science), 52 pp.

Current Graduate Student Research Advisees (8 total as of 01/2018: 4 PhD, 4 MS thesis)

8. Shepherd, Nicholas L. (PhD, environmental engineering, 2022)
7. Holzbauer-Schweitzer, Brandon (PhD, environmental science, 2020)
6. Verlander, Tiffany (MS, environmental science, 2019)
5. Tang, Zepei (PhD, environmental engineering, 2019)
4. Wall, Taylor (MS, environmental engineering, 2019)
3. Arango Calderon, Juan (PhD, environmental engineering, 2019)
2. Sikora, Amy (MS, environmental engineering, 2018)
1. Nguyen, Derrick (MS, environmental engineering, 2018)

Completed Coursework Masters Students (1)

1. Steele, Kandace M. 2017. (MS, environmental science)

Current Coursework Masters Students (1)

1. Marsh, Alexandra E. (MS, environmental science, 2019)

Graduate Student Committee Memberships

Doctoral: Approximately 30 dissertation committees (civil engineering, environmental engineering, environmental science, ecology and evolutionary biology, zoology, botany, microbiology, biology, and general engineering)

Masters: Approximately 50 masters' committees (civil engineering, environmental engineering, environmental science, and landscape architecture)

Undergraduate Research Student Advisees (including 30 National Science Foundation Research Experience for Undergraduates (NSF REU), 11 Undergraduates Research Opportunities Program (UROP) and 28 Honors or other funding)

69. Iddings, Chase (University of Oklahoma, 2018-present)
68. Wright, Duncan (University of Oklahoma, 2018-present)
67. Milligan, Claire (University of Oklahoma, 2017)
66. Maguire, Lane (University of Oklahoma, 2017, Honors Research)
65. Ingendorf, J.D. (University of Oklahoma, 2017-present, UROP)
64. Cousatte, Moriah (University of Oklahoma, 2016-17)
63. Shepherd, Nicholas (University of Oklahoma, 2014-2016, UROP)
62. Fowler, Jerrett (University of Oklahoma, 2013-14)
61. Guzman, Sandra (Pittsburg State University, 2013-2015)
60. Zawrotny, Steven (University of Oklahoma, 2012-2013)
59. Guzman, Sandra (Northeast Oklahoma A&M College, 2012-2013)
58. Turley, Chance (Northeast Oklahoma A&M College, 2012)
57. Nadiq, Vivek (University of Oklahoma, 2012)
56. Marsh, Alexandra (University of Oklahoma, 2012)
55. Arango, Juan (University of Oklahoma, 2012)
54. Shepherd, Nicholas (University of Oklahoma, 2012-2013)
53. Sansom, Zachary (Geneva College, Summer 2012, NSF REU)
52. Bisanar, Thomas (Northeast Oklahoma A&M College, 2011-2012)
51. Ferrufino Villarruel, Jose (University of Oklahoma, 2010-2011)
50. Ryan, Katherine (University of Oklahoma, 2010, UROP)
49. Mignogna, Lucas (St. Francis University, Summer 2011, NSF REU)
48. Runyon, Willis (University of Arkansas, Summer 2011, NSF REU)
47. McClenahan, Samantha (Vassar College, Summer 2011, NSF REU)
46. Ryan, Katherine (University of Oklahoma, Summer 2010, NSF REU)
45. McMahan, Margaret (Franklin W. Olin College of Engineering, Summer 2007, NSF REU)
44. Lenox, Teresa (University of Oklahoma, 2006)
43. Winfrey, Brandon (University of Oklahoma, 2005-2006)
42. Eger, Petrina (University of Wisconsin-Platteville, Summer 2006, NSF REU)
41. Clifton, Jonathan (Southeastern Oklahoma State University, Summer 2006, NSF REU)
40. Donaldson, Alana (University of Oklahoma, Summer 2006, NSF REU)
39. Wong, Siana (University of Oklahoma, 2005)
38. Bragg, Heather (University of Oklahoma, Summer 2004, NSF REU)
37. Danielson, Alec (University of Wisconsin-Madison, Summer 2004, NSF REU)
36. Oberst, Adam (Southwestern Oklahoma State University, Summer 2004, NSF REU)
35. Tepo, Dmitry (University of Colorado-Denver, Summer 2004, NSF REU)
34. Coffey, Jennifer (University of Oklahoma, 2002-2003, UROP)
33. Bennette, Jennifer (University of Oklahoma, Summer 2003, NSF REU)
32. Petterson, Ingeborg (Catholic University of America, Summer 2003, NSF REU)

31. Coffey, Jennifer (University of Oklahoma, 2001, UROP)
30. Brown, Meagan (University of Oklahoma, 2002)
29. Solchick, Elizabeth (Purdue University, Summer 2002, NSF REU)
28. Katzenstein, Warren (Harvey Mudd College, Summer 2002, NSF REU)
27. Brumley, Jessica (University of Houston, Summer 2001, NSF REU)
26. Swanson, Kathleen (Duke University, Summer 2001, NSF REU)
25. Coffey, Jennifer (University of Oklahoma, Summer 2001, NSF REU)
24. Wahnee, Kimberly (University of Oklahoma, 2001, UROP)
23. Gray, Italia (University of Oklahoma, 2001, UROP)
22. Miller, Danette (University of Oklahoma, Summer 2001, NSF REU)
21. Athay, Denae. (University of Oklahoma, Summer 2000, NSF REU)
20. Brumley, Jessica (University of Houston, Summer 2000, NSF REU)
19. Miller, Danette (University of Oklahoma, Summer 2000, NSF REU)
18. Spargo, Emily (University of Wisconsin-Madison, Summer 2000, NSF REU)
17. Wahnee Kimberly (University of Oklahoma, Summer 2000, NSF REU)
16. Cogburn, Chase Matthew (University of Oklahoma, 2000)
15. Sprowls, Megan (University of Oklahoma, 2000)
14. Lipe, Stephanie (University of Oklahoma, 1999-2000, UROP)
13. Athay, Denae (University of Oklahoma, 2000, UROP)
12. Trawinski, Elizabeth (Rensselaer Polytechnic Institute, Summer 1999, NSF REU)
11. Kirchner, Astrid (University of Graz, 1999)
10. Spence, Angie (University of Oklahoma, 1999)
9. Smith, Melissa (University of Oklahoma, 1999)
8. Athay, Denae (University of Oklahoma, Summer 1999, NSF REU)
7. Evenson, Carrie (University of Oklahoma, 1998-1999, UROP)
6. Haviland, Tanya (University of Oklahoma, 1998-1999, UROP)
5. Bible, Misty (Northeastern State University, Summer 1998, NSF REU)
4. Foster, Melanie (University of Oklahoma, 1998)
3. Huey, Greg (University of Oklahoma, 1997-1998)
2. DuBois, Chris (University of Oklahoma, 1997-1998)
1. Breetzke, Erin (St. Joseph's College, Summer 1997, NSF REU)

Additional Research Student Support Efforts

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|--------------|-----------------------------------------------------------------------------------------------------------------|
| 2011-2016 | Internship Mentor, Northeastern Oklahoma A&M College Internship Program |
| 2009-present | Coordinator, Grand River Dam Authority Graduate Student Fellowship Program |
| 2008-2009 | Mentor, Northeastern Oklahoma A&M College students |
| 2007-2010 | Mentor, High School students (Neosho, MO; Bartlesville, OK; Miami, OK) |
| 2007 | Mentor, Columbia University, NY undergraduate research student |
| 2005-2006 | Mentor, Chulalongkorn University, Thailand MS student |
| 1998-2013 | Advisor, Department of Education Graduate Assistantships in Areas of National Need
Doctoral Fellowships |
| 1997-2012 | Advisor, National Science Foundation Research Experiences for Undergraduates
Students |
| 1997-1998 | Special Appointment to the Graduate Faculty for Environmental Science PhD student,
Oklahoma State University |

RESEARCH GRANTS, COOPERATIVE AGREEMENTS, AND OTHER PROJECT FUNDING

Awards: 61 (including all multi-investigator efforts and awards to non-profit organizations)

Total funding: \$22,692,664 (including external and internal awards and real cost-share)

External funding: **\$22,436,664**

Internal funding: **\$256,000**

Individual share: **\$10,019,131** (based on percent effort distribution)

61. 2016-2017 *Water Sampling Plan for Lake Thunderbird (Contaminants of Emerging Concern)*, Central Oklahoma Master Conservancy District, \$87,914 (co-PI with K.E. Murray, R.C. Knox and D.A. Sabatini)
60. 2015-2020 *A Watershed Approach to Ecosystem Conservation, Management and Restoration: Support for Grand Lake o' The Cherokees Watershed Planning*, Grand River Dam Authority, \$2,466,670 (PI with R. Knox, R. Kolar, S. Radhakrishnan, R. Philp, A. Dzialowski, S. Stoodley, D. Storm and N. Torbick)
59. 2015 *A Multidisciplinary Approach to Indirect Potable Reuse of Wastewater: Assessing the Role of an Environmental Buffer*, College of Engineering Seed Grant/City of Norman, \$20,000 (PI with K.E. Murray, R.W. Puls, R.C. Knox and D.A. Sabatini)
58. 2014-2018 *Passive Treatment of Contaminated Mine Waters: Design, Construction and Evaluation of the Southeast Commerce Project*, Oklahoma Department of Environmental Quality, \$1,719,421 (PI with R. Knox and W. Matthews)
57. 2014-2015 *Development of Structural and Environmental Guidelines for Habitable Structures on Grand Lake o' The Cherokees*, Grand River Dam Authority, \$49,743 (co-PI with R. Knox and R. Kolar)
56. 2011-2013 *Aerating Off the Grid: Advancing Passive Treatment with Solar and Wind Power*, Office of Surface Mining, Reclamation and Enforcement, \$267,046 (PI with K.A. Strevett)
55. 2010-2011 *A Fluvial Geomorphic and Sediment Transport Study of the Little River Upstream of Lake Thunderbird Using an Acoustic Doppler Current Profiler (ADCP)*, Oklahoma Water Resources Research Institute, \$83,567 (co-Pi with R. Kolar, B. Vieux and J. Julian)
54. 2009-2019 *Grand River Dam Authority Water Quality Laboratory Equipment*, OU Vice President for Research, \$195,000 (PI with R. Kolar)
53. 2009-2019 *Grand River Dam Authority Graduate Student Support*, Grand River Dam Authority, \$1,223,200 (PI with R. Kolar)
52. 2009-2014 *Little River Watershed Best Management Practices Demonstration Neighborhood: Trailwoods Site*, U.S. Environmental Protection Agency and Oklahoma Conservation Commission, \$750,813 (co-PI with R. Coffman, C. Warnken, R. McKown, K. Strevett, G. Canty, D. Boeck, W. McManus and others)
51. 2009-2012 *Research Experience for Undergraduates in Sustainable Infrastructure Technology*. National Science Foundation, \$284,727, (co-PI with CEES Faculty)
50. 2009-2012 *Doctoral Fellowships in Technologies for Sustainable Infrastructure and Environmental Systems*, U.S. Department of Education Graduate Assistance in Areas of National Need Program, \$1,387,403 (co-PI with CEES faculty)
49. 2009-2011 *Reclaiming Irrigation Water in the High Desert of Potosi, Bolivia: Rehabilitation of Rio Juckucha*, Rotary International and multiple partners, \$466,166 (co-PI with W. Strosnider, F. Llanos, and others; awarded to Norman Rotary Club)
48. 2009-2010 *Jefferson Elementary School Water Conservation and Outdoor Classroom Project*, Oklahoma Water Resource Board, \$23,331 (Co-PI with K.A. Nairn, K. Strosnider and G. Canty; awarded to consortia including Watershed Restoration Incorporated)

47. 2008-2009 *Laboratory Bench Scale Testing for Hexavalent Chromium Reduction in Groundwater*, Science Applications International Corporation, \$30,906 (PI)
46. 2008 *Strengthening Cooperative Efforts for Environmental Restoration in Bolivia*, OU Presidential International Travel Fellowships for CREW, \$6,050 (PI)
45. 2007-2011 *Partnerships for Wetland Protection, Restoration and Planning in an Urban Setting*, U.S. Environmental Protection Agency and Oklahoma Conservation Commission, \$220,000, (co-PI with G. Canty; awarded to consortia including Watershed Restoration Incorporated)
44. 2007-2008 *Strengthening Scientific Expertise in the Bolivian Andes: A Mining Pollution and Remediation Technology Transfer Workshop*, OU Faculty Senate Development Grant, \$2,500 (PI)
43. 2006-2010 *Source, Transport and Fate of Mine Waste Contaminants at the Tar Creek Superfund Site, Oklahoma: A Modified Scope of Work for Additional Remediation and Restoration Monitoring*, U.S. Geological Survey, \$1,266,234 (PI with K. Strevett and J. Basara)
42. 2006-2009 *Research Experiences for Undergraduates in Sustainable Technologies for Infrastructure and Environment*, National Science Foundation, \$503,279, (co-PI with CEES Faculty)
41. 2006-2007 *Evaluation of Coal-Combustion By-Products for In-Situ Treatment of Acid Mine Drainage*, U.S. Department of Energy, \$40,032 (co-PI with G. Canty; awarded to consortia including Watershed Restoration Incorporated)
40. 2006-2007 *Assessing Metals Bioavailability Through Laser Ablation-Inductively Coupled Plasma Mass Spectroscopy Analysis of Tree Cores*, OU Research Council, \$6000 (PI)
39. 2005-2008 *Source, Transport and Fate of Mine Waste Contaminants at the Tar Creek Superfund Site*, U.S. Geological Survey, \$1,490,187 (PI with K. Strevett, R. Knox, and J. Basara)
38. 2005-2006 *Lake Thunderbird LT2 Monitoring Program*, Central Oklahoma Master Conservancy District, \$12,846 (co-PI with K. Strevett)
37. 2005 *Watershed Intern Program Sponsorship*, Office of Surface Mining Reclamation and Enforcement, \$2,500 (co-PI with G. Canty, awarded to Watershed Restoration Incorporated)
36. 2004-2010 *Design, Construction and Evaluation of a Passive Treatment System*, U.S. Environmental Protection Agency, \$3,514,855 (PI with K. Strevett, R. Knox, W. Matthews, and E. Bergey)
35. 2004-2007 *Maximum Chat Utilization in Asphalt Paving at the Tar Creek Superfund Site—Test Road*, Oklahoma Department of Environmental Quality and U.S. Army Corps of Engineers, \$520,928 (co-PI with M. Zaman, G. Miller, R. Knox, K. Strevett and D. Gransberg)
34. 2004-2006 *Remediation and Restoration Monitoring at the Tar Creek Superfund Site*, U.S. Geological Survey, \$1,515,279 (PI with K. Strevett, R. Knox, J. Basara, R. Lynch, D. Johnson, R. Clinkenbeard, K. Winton and others)
33. 2004-2006 *An Evaluation of Cryptosporidium Source and Presence in Lake Thunderbird*, Central Oklahoma Master Conservancy District, \$11,989, (co-PI with K. Strevett)
32. 2004-2005 *Norman Total Maximum Daily Load Survey*, CH2M Hill, Inc. \$35,783, (co-PI with K. Strevett; project terminated prematurely)
31. 2003-2007 *Doctoral Fellowships in Sustainable Technologies for Civil and Environmental Systems*, U.S. Department of Education Graduate Assistance in Areas of National Need Program, \$1,216,364 (co-PI with CEES faculty)
30. 2002-2005 *Passive Treatment of Metal-Rich Waters Through Enhanced Wetland Technologies*, U.S. Environmental Protection Agency, \$292,799 (PI with K. Strevett and R. Knox)

29. 2002-2005 *Passive Treatment of Metal-Rich Waters Through Enhanced Wetland Technologies*, State of Oklahoma Regents for Higher Education, \$102,679 (PI with K. Strevett and R. Knox)
28. 2002-2005 *New Methods in Environmental Remediation*, State of Oklahoma Regents for Higher Education, \$36,211 (PI, assumed project upon 2004 PI departure)
27. 2002-2005 *New Methods in Environmental Remediation*, Monitoring and Life Cycle Assessment, U.S. Environmental Protection Agency, \$95,828 (PI, assumed project upon 2004 PI departure)
26. 2002-2005 *Enhanced Life Cycle Assessment Framework for Environmental Technologies*, State of Oklahoma Regents for Higher Education, \$44,934 (PI, assumed project upon 2004 PI departure)
25. 2002-2004 *Laboratory Study to Optimize the Use of Raw Chat in Hot Mix Asphalt for Pavement Application*, Oklahoma Department of Environmental Quality, \$221,281 (co-PI with M. Zaman)
24. 2002-2004 *Enhanced Life Cycle Assessment Framework for Environmental Technologies*, Oklahoma Water Resources Research Institute, \$42,204 (PI, assumed project upon 2004 PI departure)
23. 2002-2003 *Passive Treatment System Design for Water Quality Improvement*, Georges Colliers Incorporated, \$25,853 (PI)
22. 2001-2004 *Design and Monitoring of a Mine Drainage Passive Treatment System*, U.S. Office of Surface Mining Reclamation and Enforcement and Oklahoma Conservation Commission, \$60,996 (PI)
21. 2001-2003 *Water Resources of the Eastern Basin of the West Bank's Mountain Aquifer*, U.S. Agency for International Development, \$185,391 (co-PI with B. Wallach, T. Dewers, A. Tarhule and B. Vieux)
20. 2001-2002 *Autopsy and Closure of a Treatment Wetlands Demonstration Project*, U.S. Environmental Protection Agency and Oklahoma Conservation Commission, \$27,171 (PI with K. Strevett)
19. 2000-2005 *Research Experiences for Undergraduates in GeoEnvironmental Systems*, National Science Foundation, \$572,784, (co-PI with CEES Faculty)
18. 2000-2003 *Effectiveness of Tire Mattresses Used for Erosion Control and Streambank Stabilization*, U.S. Environmental Protection Agency and Oklahoma Office of Secretary of Environment, \$32,409 (PI with G. Miller)
17. 2000-2003 *Beaver Creek Passive Treatment System Design*, U.S Army Corps of Engineers, \$100,000 (PI)
16. 2000-2001 *Development, Implementation and Assessment of a Multi-Semester Mega-Project for Project-Based Learning Across the Curriculum*, OU College of Engineering, \$10,200 (co-PI with R. Knox and K. Strevett)
15. 1999-2002 *Functional Assessment of Wetlands: A Comparative Evaluation of Approaches*, U.S. Environmental Protection Agency and Oklahoma Conservation Commission, \$63,165 (PI)
14. 1998-2003 *Chemicals in the Environment: Doctoral Fellowships in Environmental Engineering*, U.S. Department of Education Graduate Assistance in Areas of National Need Program, \$883,861 (co-PI with CEES faculty)
13. 1998-2000 *Development and Implementation of a Volunteer Monitoring Pilot Program for Wetlands*, U.S. Environmental Protection Agency and Oklahoma Water Resources Board, \$47,611 (PI)

12. 1997-2000 *Use of Staged Wetlands for Mitigation of Acid Mine Drainage*, U.S. Environmental Protection Agency and Oklahoma Conservation Commission, \$209,650 (PI with K. Strevett and J. Everett)
11. 1997-1999 *Research Experience for Undergraduates in Environmental Monitoring and Modeling*, National Science Foundation, \$172,000, (co-PI with CEES faculty)
10. 1997 *Microtox Bioassay Analyzer*, Azur Environmental, Inc., \$10,000 (co-PI with M. Nanny and D. Nelson)
9. 1997 *Microtox Bioassay Analyzer to Examine the Chemistry, Toxicity and Bioavailability of Sediments and Soils*, University of Oklahoma Research Council, \$6,000 (co-PI with M. Nanny and D. Nelson)
8. 1997 *Enhancement of Phosphorus Retention in Wetlands through the Manipulation of Substrate Iron Content*, University of Oklahoma Research Council, \$6,000 (PI)
7. 1997 *Ecological Engineering Applications in Croatia*, National Research Council, \$5,128 (PI)
6. 1997 *Coastal Ecology of Croatia*, National Research Council Young Investigator Program, \$3,276 (PI)
5. 1995-1996 *Presidential Fellowship*, The Ohio State University, \$12,000 (PI)
4. 1995 *Society of Wetland Scientists Graduate Student Award*, \$250 (PI)
3. 1995 *Sigma Xi Graduate Research Award*, The Ohio State University, \$250 (PI)
2. 1995 *Phi Kappa Phi Graduate Enrichment Award*, The Ohio State University, \$500 (PI)
1. 1995 *Graduate Student Alumni Research Award*, The Ohio State University, \$1,500 (PI)

REFEREED PUBLICATION SUMMARY (119 refereed publications as of January 2018)

In Preparation (first drafts completed, working titles only)

Andrews, W.J. and R.W. Nairn. Lead and Zinc Concentrations in Selected Tissues of Trees and Soils in Wetland and Upland Settings of the Abandoned Tri-State Mining District of the Central U.S

Andrews, W.J., W.G. Minarik and R.W. Nairn. Trends in Trace Metals Concentrations in Tree Rings in the Abandoned Tri-State Mining District of the Central U.S.A

Andrews, W.J. and R.W. Nairn. A Holistic Plan for the Reclamation of the Abandoned Tri-State Mining District and Similar Large Sites Contaminated by Metals

Andrews, W.J., W.G. Minarik and R.W. Nairn. Investigation of Cadmium, Lead, and Zinc in the Aquatic Environment Through Analyses of Freshwater Mussel Shell Growth Rings

Andrews, W.J. and R.W. Nairn. Analysis of Potential Ingestion and Uptake of Cadmium, Lead, and Zinc by Beef Cattle (*Bos taurus*), White-tailed Deer (*Odocoileus virginianus*), Freshwater Fish, and Mussels in the Tri-State Mining District

Arango, J.G. and R.W. Nairn. Prediction of Secchi Disk Measurements in Three Oklahoma Reservoirs Using Landsat 7 Images

Holzbauer-Schweitzer, B.K. and R.W. Nairn. Comparison of Urban Stormwater Runoff Quality from Watersheds with Traditional and Low Impact Development Management

LaBar, J.A. and R.W. Nairn. Using reactive transport modeling to predict trace metal removal products in vertical flow bioreactors

Nairn, R.W. J.A. LaBar, N.L. Shepherd, L. Oxenford, and R. Knox. Sustained Water Quality Improvement in a Mine Drainage Passive Treatment System through Targeted Mechanisms in Multiple Process Units

Nairn, R.W. The Role of Carbon Dioxide on Passive Treatment System Effectiveness

Nairn, R.W., J.A. LaBar and L. Oxenford. Coupled Oxidative and Reductive Mechanisms for Effective Passive Metal Removal from Mine Waters

Neely, C.A. and R.W. Nairn. Characterization of Iron Oxides from Abandoned Mine Drainage Discharges

- Oxenford, L. and R.W. Nairn. Spatial Geochemical Characterization of Iron Accumulation in Oxidation Ponds and Wetlands in a Mine Drainage Passive Treatment System
- Oxenford, L. and R.W. Nairn. Spatial Profiling of Seasonally Influenced Passive Iron Removal
- Oxenford, L. and R.W. Nairn. Storm-event Driven Metal Transport Dynamics Between Oxidative Passive Treatment System Units
- Oxenford, L. and R.W. Nairn. Tracer Tests to Determine of Hydraulic and Hydrologic Performance of Passive Treatment Systems
- Shepherd, N.L. and R.W. Nairn. Biogeochemical Analysis of Spent Media from a Vertical Flow Treatment Pond of a Passive Treatment System

Submitted/In review

- Dutnell, R.C., R.L. Kolar, R.W. Nairn and J. Julian. Measuring Sediment Transport in Small Rivers Using an Acoustic Doppler Current Profiler (ADCP) and Plume Detection Software. *Water Science and Engineering*
- Santamaria, B., W.H. Strosnider and R.W. Nairn. Evaluating the Longevity of Vertical Flow Bioreactors via Batch Testing of Differently-Aged Substrates. *Journal of Environmental Quality*

Accepted/In revision

- Brumley, J.D. and R.W. Nairn. Litter Decomposition Rates in Mine Water Wetlands and Ponds. *Wetlands*.
- LaBar, J.A. and R.W. Nairn. Characterization of trace metal removal products in vertical flow bioreactor substrates at the Mayer Ranch Passive Treatment System in the Tar Creek Superfund Site. *Chemosphere*
- Zawrotny, S.C., J. Arango-Calderon, G. Rutelonis, J.A. LaBar, D.E. Townsend III, R.C. Knox and R.W. Nairn. Chemical Constituents in Water and Sediment from Grand Lake O' the Cherokees, Oklahoma, Downstream from the Tri-State Lead-Zinc Mining District. *Journal of the American Society of Mining and Reclamation*.

Journal Publications

47. Gu, J., H. He, H. Jin, J. Yu, E. Jeppesen, R.W. Nairn and K. Li. 2018. Synergistic negative effects of small-sized benthivorous fish and nitrogen loading on the growth of submerged macrophytes – relevance for shallow lake restoration. *Science of the Total Environment* 610-611: 1572-1580.
46. Garrido, A.E., W.H. Strosnider, R. Taylor Wilson, J. Condori and R.W. Nairn. 2017. Metal-Contaminated Potato Crops and Potential Human Health Risk in Bolivian Mining Highlands. *Environmental Geochemistry and Health* 39(3): 681-700.
45. LaBar, J.A. and R.W. Nairn. 2017. Evaluation of the impact of Na-SO₄ dominated ionic strength on effluent water quality in bench-scale vertical flow bioreactors using spent mushroom compost. *Mine Water and the Environment* 36(4): 572-582.
44. Strosnider, W.H., S.E. Schultz, K.A. Johnson-Strosnider and R.W. Nairn. 2017. Effects on the Underlying Water Column by Extensive Floating Treatment Wetlands. *Journal of Environmental Quality* 46(1):201-209.
43. Skousen, J., C.E. Zipper, A. Rose, P. Ziemkiewicz, R. Nairn and L.M. McDonald. 2017. Review of Passive Systems for Acid Mine Drainage Treatment. *Mine Water and the Environment* 36:133-153.
42. LaBar, J.A. and R.W. Nairn. 2016. Evaluating the impacts of Na-SO₄ dominated ionic strength on trace metal removal products in vertical flow bioreactors. *Applied Geochemistry* 73(2016):24-34.

41. Penn, C., J. Bowen, J. McGrath, R. Nairn, G. Fox, G. Brown, S. Wilson and C. Gill. 2016. Evaluation of a universal flow-through model for predicting and designing phosphorus removal structures. *Chemosphere* 15: 345-355.
40. Sabatini, D., J. Chamberlain, R. Dreibelbis, Y. Hong, R. Kolar, R. Knox, and R. Nairn. 2016. The University of Oklahoma WaTER Center – Water Security: Quantity, Quality, Equity, *Water Resources Impact* 18(1): 17-19.
39. Strosnider, W.H., S. Carvajal, F. Llanos-Lopez, R.W. Nairn, R.A. Peer and B.K. Winfrey. 2015. Analisis del Co-tratamiento pasivo de aguas residuales municipales y drenaje acido de minas en Cerro Rico de Potosi, Bolivia (Analysis of Municipal Wastewater and Acid Mine Drainage Passive Co-Treatment at Cerro Rico de Potosi, Bolivia). *Avances en Ciencias e Ingenieria* 6(2):23-37.
38. Hedin, R. R. Nairn, R. Kleinmann and W. Strosnider. 2015. The Three Bobs: Reflections on Two Decades of Passive Treatment. *Reclamation Matters*. Spring 2015: 8-9.
37. Peer, R.A., J.A. LaBar, B.K. Winfrey, R.W. Nairn, F.S. Llanos Lopez and W.H. Strosnider. 2015. Removal of Less Commonly Addressed Metals via Passive Co-Treatment. *Journal of Environmental Quality* 44(2): 704-710.
36. Winfrey, B.K., R.W. Nairn, D.R. Tilley and W.H. Strosnider. 2015. Emergy and Carbon Footprint Analysis of the Construction of Passive and Active Treatment Systems for Net Alkaline Mine Drainage. *Mine Water and the Environment* 34: 31-41.
35. Santamaria, B., W.H.J. Strosnider, M.R. Apaza Quispe and R.W. Nairn. 2014. Evaluating Locally Available Organic Substrates for Vertical Flow Passive Treatment Cells at Cerro Rico de Potosi, Bolivia. *Environmental Earth Sciences* 72: 731-741.
34. Strosnider, W.H.J., F.S. Llanos Lopez, C.E. Marcillo, R.R. Callapa and R.W. Nairn. 2014. Impacto en Afluentes del Rio Pilcomayo Por Contaminantes Adicionales de Drenaje Acido de Minas Desde Cerro Rico, Potosi-Bolivia. (Impacts of Additional Contaminants Due to Acid Mine Drainage in Tributaries of the Pilcomayo River from Cerro Rico, Potosi, Bolivia). *Avances en Ciencias e Ingenieria* 5(3): 1-17.
33. Strosnider, W.H.J., F.S. Llanos Lopez, J.A. LaBar, K.J. Palmer and R.W. Nairn. 2014. Unabated Acid Mine Drainage from Cerro Rico de Potosi, Bolivia: Uncommon Constituents of Concern Impact the Rio Pilcomayo Headwaters. *Environmental Earth Sciences* 71(7): 3223-3234.
32. Nairn, R.W. 2014. Reclamation in the Heartland: The Tar Creek Superfund Site and the Tri-State Mining District. *Reclamation Matters*. Spring 2014: 8-11
31. Strosnider, W.H.J., B.K. Winfrey, R.A.M. Peer and R.W. Nairn. 2013. Passive Co-Treatment of Acid Mine Drainage and Sewage: Anaerobic Incubation Reveals a Regeneration Technique and Further Treatment Possibilities. *Ecological Engineering* 61: 268-273.
30. Andrews, W.J., C.J. Gavilan Moreno and R.W. Nairn. 2013. Potential Recovery of Aluminum, Titanium, Lead and Zinc from Tailings in the Abandoned Picher Mining District of Oklahoma. *Mineral Economics* 26: 61-69.
29. Strosnider, W.H.J., R.W. Nairn, R.A.M. Peer and B.K. Winfrey. 2013. Passive Treatment of Zn-rich Acid Mine Drainage and Raw Municipal Wastewater. *Journal of Geochemical Exploration* 125: 110-116.
28. Strosnider, W.H.J., T.A. Hughes, R.A.M. Peer, B.K. Winfrey, N.F. Gray and R.W. Nairn. 2012. Co-treatment of Acid Mine Drainage with Municipal Wastewater: A Promising New Approach. *Reclamation Matters*. Fall 2012: 26-29.
27. Brown, D.J., G.M Street, R.W. Nairn and M.R.J. Forstner. 2012. A Place to Call Home: Amphibian Use of Created and Restored Wetlands. *International Journal of Ecology* 2012: 1-11; doi:10.1155/2012/989872

26. Strosnider, W.H.J., F.S. Llanos Lopez and R.W. Nairn. 2011. Acid Mine Drainage at Cerro Rico de Potosi II: Severe Degradation of the Upper Rio Pilcomayo Watershed. *Environmental Earth Sciences* 64: 911-923
25. Strosnider, W.H.J., F.S. Llanos Lopez and R.W. Nairn. 2011. Acid Mine Drainage at Cerro Rico de Potosi I: Unabated High-Strength Discharges Reflect a Five Century Legacy of Mining. *Environmental Earth Sciences* 64: 899-910
24. Strosnider, W.H.J., B.K. Winfrey and R.W. Nairn. 2011. Alkalinity Generation in a Novel Multi-Stage High-Strength Acid Mine Drainage and Municipal Wastewater Passive Co-Treatment System. *Mine Water and Environment* 30(1): 47-53
23. Strosnider, W.H.J., B.K. Winfrey and R.W. Nairn. 2011. Novel Passive Co-Treatment of Acid Mine Drainage and Municipal Wastewater. *Journal of Environmental Quality* 40(1): 206-213
22. Strosnider, W.H. B.K. Winfrey and R.W. Nairn. 2011. Biochemical Oxygen Demand and Nutrient Processing in a Novel Multi-Stage Raw Municipal Wastewater and Acid Mine Drainage Passive Co-Treatment System. *Water Research* 45(3): 1079-1086
21. Amezaga, J.M, T.S. Roetting, P.L. Younger, R.W. Nairn, A-J. Noles, R. Oyarzún, and J. Quintanilla. 2011. A Rich Vein? Mining and the Pursuit of Sustainability. *Environmental Science and Technology* 45(1): 21-26
20. Winfrey, B.K., W.H. Strosnider, R.W. Nairn and K.A. Strevett. 2010 Highly Effective Reduction of Fecal Indicator Bacteria Counts in an Ecologically-Engineered Acid Mine Drainage and Municipal Wastewater Passive Co-Treatment System. *Ecological Engineering* 36(12): 1620-1626
19. LaBar, J.A. and R.W. Nairn. 2010. Evaluation of the First 1.5 Years of Operation of a Passive Treatment System in SE Oklahoma. *Reclamation Matters* Fall 2010: 14-17.
18. Porter, C.M. and R.W. Nairn. 2010 Fluidized Bed Ash and Passive Treatment Reduce the Adverse Effects of Acid Mine Drainage on Aquatic Organisms. *Science of the Total Environment* 408 (22): 5445-5451
17. Wasiuddin, N.M., W.B. Hamid, M.M. Zaman and R.W. Nairn. 2010. Use of Raw Chat in HMA Surface – Environmental and Engineering Characterization. *Journal of Solid Waste Technology and Management* 36(2): 69-80.
16. Strosnider, W.H. and R.W. Nairn. 2010. Effective Passive Treatment of High Strength Acid Mine Drainage and Raw Municipal Wastewater in Potosí, Bolivia using Simple Mutual Incubations and Limestone. *Journal of Geochemical Exploration* 105(1-2): 34-42.
15. Strosnider, W.H., R.W. Nairn, B. Santamaria, F.S. Llanos, A. Garrido and L.R. Oxenford. 2009. Strengthening Scientific Expertise in the Bolivian Andes through Research, Teaching and Outreach: Tackling Severe Mining-Related Pollution in Potosí, Bolivia. *Reclamation Matters* Fall 2009: 16-19.
14. Porter, C.M. and R.W. Nairn. 2008. Ecosystem Functions within a Mine Drainage Passive Treatment System. *Ecological Engineering: The Journal of Ecosystem Restoration*. 32(4): 337-346.
13. Wasiuddin, N.M., W.B. Hamid, M. Zaman and R.W. Nairn. 2007. Use of Raw Chat in Hot-Mix Asphalt Surface: Environmental and Engineering Characterization, Transportation Research Board 86th Annual Meeting Compendium of Papers, Report 07-3193, 15 pp.
12. Wasiuddin, N.M., M. Zaman, R.W. Nairn and N. Kolothody. 2006. Characteristics of Chat-Asphalt for Road Base Application. *Journal of Solid Waste Technology and Management*. 32(3): 125-137

11. Anderson, C., W. Mitsch and R. Nairn. 2005. Temporal and spatial development of surface soil conditions at two created riverine marshes. *Journal of Environmental Quality* 34: 2072-2081.
10. Sund, J.L., C.J. Evenson, K.A. Strevett, R.W. Nairn, D. Athay and E. Trawinski. 2001. Nutrient conversions by photosynthetic bacteria in a concentrated animal feeding operation lagoon system. *Journal of Environmental Quality* 30(2): 648-655
9. Nairn, R.W. and M.N. Mercer. 2000. Alkalinity generation and metals retention in a successive alkalinity producing system. *Mine Water and the Environment*. 19(2): 124-133.
8. Nairn, R.W. and W.J. Mitsch. 2000. Phosphorus removal in created wetland ponds receiving river overflow. *Ecological Engineering* 14(1-2): 107-126.
7. Mitsch, W.J., A.J. Horne and R.W. Nairn. 2000. Nitrogen and phosphorus retention in wetlands - Ecological approaches to solving excess nutrient problems. *Ecological Engineering* 14(1-2):1-7.
6. Mitsch, W.J., X.B. Wu, R.W. Nairn and N. Wang. 2000. To plant or not to plant. *BioScience* 50(3): 188-190.
5. Spence, A., M. Smith and R. Nairn. 1999. Ecological assessment of several Central Oklahoma streams through evaluation of fish communities and habitat in a drought year. *Proceedings of the Oklahoma Academy of Science* 79: 61-72.
4. Mitsch, W.J., X. Wu, R.W. Nairn, P.E. Weihe, N. Wang, R. Deal and C.E. Boucher. 1998. Creating and restoring wetlands: a whole-ecosystem experiment in self-design. *BioScience* 48(12): 1019-1030.
3. Nairn, R.W. 1998. The "Eco-language" of Environmental Controversies. *Ecology* 78(8): 2638-2639 (Book Review)
2. Mitsch, W.J., J.K. Cronk, X. Wu, R.W. Nairn and D.L. Hey. 1995. Phosphorus retention in constructed freshwater riparian marshes. *Ecological Applications* 5(3):830-845.
1. Hedin, R.S., G.R. Watzlaf and R.W. Nairn. 1994. The use of limestone in the treatment of acid mine drainage. *Journal of Environmental Quality* 23:1338-1345.

Other Significant Refereed Publications

5. Watzlaf, G.R., K.T. Schroeder, R.L.P. Kleinmann, C.L. Kairies and R.W. Nairn. 2004. Passive Treatment of Coal Mine Drainage. U.S. Department of Energy Internal Publication. 72 pp.
4. Hatley, E., et al. 2000. Surface and Ground Water Monitoring. Water Quality Subcommittee Task 1 Report to Governor Frank Keating's Tar Creek Superfund Task Force. 56 pp.
3. Nairn, R.W. et al. 2000. Water Quality Improvement Alternatives. Task 2 Water Quality Subcommittee Report, Governor Frank Keating's Tar Creek Superfund Task Force. 35 pp.
2. Hedin, R.S., R.W. Nairn and R.L.P. Kleinmann. 1994. Passive Treatment of Coal Mine Drainage. U.S. Bureau of Mines Information Circular 9389. 37 pp.
1. VanDeveer, S.D., L. DiPinto, J. Marks, R.W. Nairn, R.A. Robertson and R.J. Wilder. 1999. Coastal Ecology, Environmental Issues and Policy in Croatia, Office for Central Europe and Eurasia, Office of International Affairs, National Research Council. National Academy Press. 73 pp.

Refereed Book Chapters

3. Aber, J.S., S.W. Aber, G. Manders, and R.W. Nairn. 2010. Route 66—Geology and Legacy of Mining in the Tri-State District of Missouri, Kansas, and Oklahoma. In: Evans, K.R. and J.S. Aber (Eds.), *From Precambrian Rift Volcanoes to the Mississippian Shelf Margin: Geological Field Excursions in the Ozark Mountains*. Geological Society of America Field Guide 17, p. 1–22, doi: 10.1130/2010.0017(01)

2. Kleinmann, R.L.P., R.S. Hedin and R.W. Nairn. 1998. Treatment of mine drainage by anoxic limestone drains and constructed wetlands. In: W. Geller, H. Klapper and W. Salomons (Eds.), *Acidic Mining Lakes: Acid Mine Drainage, Limnology, and Reclamation*. Springer-Verlag, Berlin, pp. 303-319.
1. Hedin, R.S. and R.W. Nairn. 1993. Contaminant removal capabilities of wetlands constructed to treat coal mine drainage. In: G.A. Moshiri (ed.), *Constructed Wetlands for Water Quality Improvement*, CRC Press, Lewis Publishers, Inc. Chelsea, MI, pp. 187-195.

Refereed Conference Proceedings Full Publications

62. Behum, P.T., R.W. Nairn and M. Sharp. 2015. Long-Term Passive Treatment of the Acid Mine Drainage at the Lebosquet No. 1 and No. 2 Mines, LeFlore County, Oklahoma. *Proceedings of the 37th Annual National Association of Abandoned Mine Lands Conference*, Santa Fe, NM, 12 pp.
61. Nairn, R.W. 2013. Carbon Dioxide Impacts Both Passive Treatment System Effectiveness and Carbon Footprint. *Reliable Mine Water Technology: Proceedings International Mine Water Association*, Golden, CO, USA, 6 pp.
60. Jordahl, J.L., R.W. Nairn, K.A. Strevett, T. Beisel and J. Bays. 2012. Mayer Ranch Passive Treatment System Construction - A Public-Private Partnership. *Proceedings of the 2012 National Association of Abandoned Mine Lands Programs Conference*, Des Moines, IA, 8 pp
59. Yepez, S.A. and R.W. Nairn. 2012. Nutrient and Sulfide Export from a Mine Drainage Passive Treatment System. *Proceedings of the 29th National Conference of the American Society of Mining and Reclamation*, Tupelo, MS, pp. 539-556.
58. Palmer, K.J., F. Llanos Lopez, R.R. Callapa, A.A. Neptune, A. Cisse, C.T. Breazile, R.W. Nairn and W.H. Strosnider. 2012. Preliminary Evaluation of Limestone-Based Passive Treatment Systems for Low-pH Acid Mine Drainage in Andean Bolivia. *Proceedings of the 29th National Conference of the American Society of Mining and Reclamation*, Tupelo, MS, pp. 426-435.
57. Neptune, A.A., F.S. Llanos Lopez, R.R. Callapa, K.J. Palmer, R.W. Nairn, J.Z. Bandstra, and W.H. Strosnider. 2012. The Pailaviri Tailings Deposit, Potosi, Bolivia: Extreme Acid Rock Drainage Generation. *Proceedings of the 29th National Conference of the American Society of Mining and Reclamation*, Tupelo, MS, pp. 394-403.
56. Mignogna, L.J., W.A. Runyon, R.W. Nairn and W.H. Strosnider. 2012. Preliminary Assessment of Floodplain Soil Metal Concentrations, Neosho River, Oklahoma. *Proceedings of the 29th National Conference of the American Society of Mining and Reclamation*, Tupelo, MS, pp. 379-388.
55. Neely, C.A. and R.W. Nairn. 2011. Potential Anionic Sorbent Use of Iron Oxides from Abandoned Mine Drainage Discharges. *Proceedings of the 28th National Conference of the American Society of Mining and Reclamation*, Bismarck, ND, pp. 469-500.
54. Oxenford, L.R. and R.W. Nairn. 2011. Seasonal Iron Removal and Transport within the Initial Oxidative Cells of a Passive Treatment System. *Proceedings of the 28th National Conference of the American Society of Mining and Reclamation*, Bismarck, ND.
53. Strosnider, W.H., R.W. Nairn, H.R. Montero and F.L. Pinto. 2011. Water Quality Impacts from In-Stream Mine Tailings at the Headwaters of the Rio Pilcomayo, Potosi, Bolivia. *Proceedings of the 28th National Conference of the American Society of Mining and Reclamation*, Bismarck, ND, pp. 635-654.
52. Nairn and J.A. LaBar. 2011. Field Examination of Iron and Trace Metal Retention in Net Alkaline CO₂-Rich Mine Waters via Aerobic Processes. *Proceedings of the 28th National*

- Conference of the American Society of Mining and Reclamation*, Bismarck, ND, pp. 438-449.
51. LaBar, J.A. and R.W. Nairn. 2011. Determination of Dominant Metal Sequestration Processes in a Vertical Flow Cell Substrate. *Proceedings of the 28th National Conference of the American Society of Mining and Reclamation*, Bismarck, ND, pp. 352.
 50. Nairn, R.W. J.A. LaBar, K.A. Strevett, W.H. Strosnider, D. Morris, C.A. Neely, A. Garrido, B. Santamaria, L. Oxenford, K. Kauk, S. Carter, B. Furneaux. 2010. A Large, Multi-Cell, Ecologically Engineered Passive Treatment System for Ferruginous Lead-Zinc Mine Waters. *Mine Water and Innovative Thinking, Proceedings International Mine Water Association*, Sydney, Nova Scotia, Canada, pp. 255-258.
 49. Garrido, A.E., W.H. Strosnider, and R.W. Nairn. 2010. Accumulation of Eco-Toxic Metals in Potato Plants Under Greenhouse Conditions Irrigated with Synthetic Acid Mine Drainage Impacted Water and Health Risk Evaluation. *Proceedings of the 27th National Conference of the American Society of Mining and Reclamation*, Pittsburgh, PA, pp. 337-364.
 48. LaBar, J.A., R.W. Nairn, K.A. Strevett, W.H. Strosnider, D. Morris, C.A. Neely, A.E. Garrido and K. Kauk. 2010. Stream Water Quality Improvements after Installation of a Passive Treatment System. *Proceedings of the 27th National Conference of the American Society of Mining and Reclamation*, Pittsburgh, PA, pp. 525-535.
 47. Nairn, R.W., J.A. LaBar, K.A. Strevett, W.H. Strosnider, D. Morris, A.E. Garrido, C.A. Neely and K. Kauk. 2010. Initial Evaluation of a Large Multi-Cell Passive Treatment System for Net-Alkaline Ferruginous Lead-Zinc Mine Waters. *Proceedings of the 27th National Conference of the American Society of Mining and Reclamation*, Pittsburgh, PA, pp. 635-649.
 46. Neely, C.A. and R.W. Nairn. 2010. Characterization of Iron Oxides from Abandoned Mine Drainage Discharges. *Proceedings of the 27th National Conference of the American Society of Mining and Reclamation*, Pittsburgh, PA, pp. 691-721.
 45. Oxenford, L.R. and R. W. Nairn. 2010. Progressive Iron Removal Within the Initial Oxidation Cell of a Passive Treatment System. *Proceedings of the 27th National Conference of the American Society of Mining and Reclamation*, Pittsburgh, PA, pp. 767-779.
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Journal Special Issue Editorships

1. Mitsch, W.J., A.J. Horne and R.W. Nairn. 2000. Special Issue: Nitrogen and Phosphorus Retention in Wetlands. *Ecological Engineering* 14(1-2): 1-219.

Citation Record

	Google Scholar	Research Gate	Elsevier Scopus	Web of Science
Number of articles cited	122	95	65	32
Number of citations	2629	1328	931	786
h-index/ i10-index	24/32	18/---	15/---	14/---
RG Score	---	28.79	---	---
RG Percentile/Reads	---	85/5258	---	---
Date accessed	03.Jan 2018	03.Jan 2018	03.Jan 2018	03.Jan 2018

ADDITIONAL RESEARCH PUBLICATIONS AND RELATED EFFORTS

Selected Technical Publications

- Yepez, S.A. and R.W. Nairn. 2012. Nuisance Parameter Export from a Mine Drainage Passive Treatment System in the Tar Creek Watershed. Grand River Dam Authority's Semi-Annual Watershed Contributions and Regional Partnerships: Partners in Conservation and Restoration, pp. 4-5.
- Nairn, R.W. and the 2010 and 2012 Environmental Science and Engineering Senior Capstone Classes. 2012. Sediment Metal Concentrations in Grand Lake O' the Cherokees. Grand River Dam Authority's Semi-Annual Watershed Contributions and Regional Partnerships: Partners in Conservation and Restoration, pp. 6-7.
- Mignogna, L.J., W.A. Runyon. and R.W. Nairn. 2012. Metal Concentrations in Neosho River Floodplain Alluvial Soils. Grand River Dam Authority's Semi-Annual Watershed Contributions and Regional Partnerships: Partners in Conservation and Restoration, pp. 8-9.

- Furneau, B. and R.W. Nairn. 2012. Biodiversity Assessment of a Passive Treatment System for Metals-Contaminated Mine Drainage. Grand River Dam Authority's Semi-Annual Watershed Contributions and Regional Partnerships: Partners in Conservation and Restoration, pp. 10-11.
- Nairn, R.W. 2012. Addressing Metals Contaminated Mine Waters at Tar Creek. Grand River Dam Authority's Semi-Annual Watershed Contributions and Regional Partnerships: Partners in Conservation and Restoration, pp. 12-13.
- Nairn, R.W. and W.J. Mitsch. 1997. Water quality changes of the experimental wetlands at the Olentangy River Wetland Research Park. *In*: W.J. Mitsch (ed.), Olentangy River Wetland Research Park at The Ohio State University, Annual Report 1996.
- Nairn, R.W., N. Wang, R.J.F. Bruins and W.J. Mitsch. 1996. Hydrologic budgets of the Olentangy River wetlands. *In*: W.J. Mitsch (ed.), Olentangy River Wetland Research Park at The Ohio State University, Annual Report 1995.
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- Mitsch, W.J., R.W. Nairn, X. Wu and A. Wehr. 1995. Water quality changes in Olentangy River water caused by the experimental wetlands at the Olentangy River Wetland Research Park - results during the first year. *In*: W.J. Mitsch (ed.), Olentangy River Wetland Research Park at The Ohio State University, Annual Report 1994, pp. 51-62.
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- Mitsch, W.J., R.W. Nairn and A. Wehr. 1994. Water quality of the Olentangy River prior to pumping. *In*: W.J. Mitsch (ed.), Olentangy River Wetland Research Park at The Ohio State University, Annual Report 1993, pp. 37-39.
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Selected Research Project Final Reports

- Knox, R.C., R.W. Nairn, J. Volz, R.L. Kolar and B. Dittrich. 2015. Development of Wastewater Treatment and Structural Engineering Guidelines for Habitable Structures on Grand Lake O' the Cherokees, Grand River Dam Authority, 23 pp.

- Nairn, R. 2015. Lake Thunderbird Watershed Implementation Project: Trailwoods Demonstration Site Monitoring. Final Report to Oklahoma Conservation Commission Water Quality Division, USEPA Grant C9-9961990-16, Project 5, OCC Task 11-159, Output 5.3.4d, 124 pp.
- Nairn, R. 2014. Wetland Treatment Study: Lake Thunderbird Watershed Implementation Project, Phase II. Final Report to Oklahoma Conservation Commission Water Quality Division, USEPA Grant C9-9961990-16, Project 5, Task 5.4e., 44 pp.
- Nairn, R. 2014. Aerating Off the Grid: Advancing Passive Treatment with Solar and Wind Power. Final Report to Office of Surface Mining Reclamation and Enforcement, Applied Science Program Cooperative Agreement S11AC2000, 93 pp.
- Nairn, R., K. Strevett, R. Knox, and W. Matthews. 2012. Design, Construction and Evaluation of a Passive Treatment System for Contaminated Mine Waters at the Tar Creek Superfund Site. Final Deliverable to U.S. Environmental Protection Agency, FY04 104(b)(3) Project X7-97682001-0, 566 pp.
- Nairn, R., K. Strevett, and J. Basara. 2012. Remediation and Restoration Monitoring at the Tar Creek Superfund Site, Oklahoma: Source, Transport and Fate of Mine Waste Contaminants. Final Deliverable to U.S. Geological Survey, DOI-USG 04HQAG0131, 1151 pp.
- Canty, G. and R. Nairn. 2011. Partnerships for Wetland Protection, Restoration and Planning in an Urban Setting. Final Report to Oklahoma Conservation Commission, USEPA Grant CD-996400-01, Project 1, 39 pp
- Johnson-Strosnider, K., A. Nairn and R. Nairn. 2009. The Jefferson Elementary School Water Conservation and Outdoor Classroom Project. Final Report to Oklahoma Water Resources Board, Oklahoma Water Conservation Grant Program, Project 2009-01, 42 pp.
- Nairn, R. and J. LaBar. 2009. Laboratory Bench-Scale Testing for Cr(VI) Reduction in Groundwater (Site CG038 at Tinker Air Force Base). Final Deliverable to Science Applications International Corporation, 20 pp.
- Wasiuddin, N., M. Zaman, R.W. Nairn, S.K. Navaratnarajah, R.V. Teredesai. 2009. Maximum Chat Utilization in Asphalt Paving at the Tar Creek Superfund Site—Test Road, Final Report to Oklahoma Department of Environmental Quality, 300 pp.
- Winfrey, B.K., G. A. Canty and R.W. Nairn. 2008. Evaluation of Coal-Combustion By-Products for In-Situ Treatment of Acid Mine Drainage, Final Report to Combustion By-Product Recycling Consortium, U.S. Department of Energy, CBRC Project #ECW04-99, 19 pp.
- Focht, W., R. Nairn, L. Regens and C. Settle. 2006. New Methods in Environmental Remediation, Monitoring and Life Cycle Assessment, Final Report to U.S. Environmental Protection Agency NCER Assistance Agreement GR829423-01-0, 348 pp.
- Wasiuddin, N.M., W.B. Hamid, N. Kolothody, C.F. Gause, M. M. Zaman and R.W. Nairn. 2005. A Laboratory Study to Optimize the Use of Raw Chat in Hot Mix Asphalt for Pavement Application, Final Report to Oklahoma Department of Environmental Quality. 300+pp.
- Teredesai, R., M. Zaman, G.A. Miller and R.W. Nairn. 2005. Cementitious Stabilization of Raw Chat for Roadway Base Application, Final Report to Oklahoma Department of Environmental Quality. 48 pp.
- Garrett, R. and R.W. Nairn. 2005. Passive Treatment System for Water Quality Improvement, Final Report to Georges Colliers Inc., 13 pp.
- Nairn, R.W. 2005. Passive Treatment of Metal-Rich Waters through Enhanced Wetland Technologies, Final Report to U.S. Environmental Protection Agency, 99 pp.
- Nairn, R.W. 2004. Design and Monitoring of a Mine Drainage Passive Treatment System, Red Oak, OK. Final Report to Abandoned Mine Lands Program, Oklahoma Conservation Commission, 314 pp.

- Nairn, R.W. and B. Winter. 2004. Effectiveness of Tire Mattresses Used for Erosion Control and Stream Bank Stabilization, Final Report to Oklahoma Office of the Secretary of the Environment and U.S Environmental Protection Agency, 111 pp.
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- Nairn, R.W. and C.R. Dubois. 2002. A Comparative Evaluation of Wetland Assessment Methods for Use in Oklahoma, Final Report to Oklahoma Conservation Commission and U.S Environmental Protection Agency, 242 pp.
- Nairn, R.W. 2002. Use of Staged Wetlands for Mitigation of Acid Mine Drainage, Final Report to Oklahoma Conservation Commission and U.S Environmental Protection Agency, 80 pp.
- Breetzke, E.E. and R.W. Nairn. 2001. Development and Implementation of a Wetlands Volunteer Monitoring Pilot Program, Final Report to Oklahoma Water Resources Board and U.S Environmental Protection Agency, 301 pp.
- Mitsch, W.J., J.K. Cronk, X. Wu, J. Ely, M.S. Fennessy, N. Flanagan, R.W. Nairn, N. Wang, J. Green and D.G. Stuart. 1993. Phosphorus retention and ecosystem productivity of constructed wetlands at the Des Plaines River Wetlands Demonstration Project, 1991-1992. Final Report to Wetlands Research, Inc. and the U.S. Army Corps of Engineers, 82 pp.
- Hedin, R.S., D.H. Dvorak, S.L. Gustafson, D.M. Hyman, P.E. McIntire, R.W. Nairn, R.C. Neupert, A.C. Woods and H.M. Edenborn. 1991. Use of a Constructed Wetland for the Treatment of Acid Mine Drainage at the Friendship Hill National Historic Site, Fayette County, PA. Technical Report to the National Park Service, 128 pp.

Intellectual Property Technology Development

- Provisional Patent Application 00NOR031: Tar Creek Remediation Methods, 2000. R. Knox, J. Harwell, D. Sabatini, R. Nairn, and K. Strevett

Selected Research Program Leadership Activities (at University of Oklahoma)

- | | |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2017-present | University environmental research portfolio development |
| 2017 | American Academy of Environmental Engineers and Scientists Kappe Lecturer Program (sponsor and host for Dr. Danny Reible, NAE Member, Texas Tech University, Lubbock, TX) |
| 2015 | Association of Environmental Engineering and Science Professors Distinguished Lecturer Program (sponsor and host of Dr. Nancy Love, University of Michigan, Ann Arbor, MI) |
| 2014-2016 | Water/Energy/Climate Nexus Strategic Planning Committee |
| 2012-2015 | Water Innovations Research Laboratory Planning Committee |
| 2011-2015 | Passive treatment system internship program (cooperative effort supporting NEO A&M College undergraduate students at long-term field site) |
| 2008-present | Grand River Dam Authority (GRDA) Ecosystems and Education Center (multidisciplinary research program at multi-entity state-of-the-art water laboratory) |
| 2008-present | GRDA Neosho Bottoms Research Area (multidisciplinary research program at 1500-ha historic bottomland hardwood forests) |
| 2008-present | Water Technologies for Emerging Regions Center (research/service to bring safe water and sanitation to remote villages in developing countries) |
| 2006-present | Kumurana (Bolivia) Mine Water Treatment Project (collaborative international efforts to implement passive treatment technologies in the high Andes and Altiplano) |

- 2004-present Center for Restoration of Ecosystems and Watersheds (research on watershed biogeochemistry and ecological engineering to restore degraded ecosystems)
- 2004-2006 Mississippi-Ohio-Missouri (MOM) Basin (watershed restoration initiative)
- 2003-2008 Institute for Oklahoma Technology Applications (multidisciplinary technology development activities in College of Engineering)
- 2001 Oak Ridge Associated Universities Visiting Industrial Scholars Program (sponsor and host of recipient Dr. Robert S. Hedin, Hedin Environmental, Pittsburgh, PA)
- 2000-present Great Plains Cooperative Ecosystem Studies Unit (partnership among 16 universities and eight federal agencies)
- 1998 Environmental and Groundwater Institute Distinguished Visitor Program (sponsor and host of Dr. William J. Mitsch, The Ohio State University, Columbus, OH)
- 1998-present Tar Creek Watershed Remediation and Restoration Program (multi-entity initiative to address sustainable remediation of the Tar Creek Superfund Site, Oklahoma; helped to secure > \$43M in dedicated federal funding to address environmental and human health and for land and water restoration and monitoring; implemented first two full-scale mine drainage treatment systems of any kind in the Tri-State Lead-Zinc Mining District)
- 1997-present Arkoma Basin Coal Mine Drainage Program (cooperative federal, state, university, and non-profit initiative to address abandoned coal mine-impacted watersheds)

International Research Experience

- South Africa Speaker and research collaborator on mine water treatment technologies, Pretoria (pending)
- Nigeria Research on environmental impacts of mining and passive treatment of metal-contaminated mine waters (pending)
- South Korea Invited keynote speaker at Fifth International Symposium on Mine Reclamation, Jeongseon City; collaborative research (pending)
- Ecuador Coordination of non-profit efforts to help bring water and sanitation solutions to those in need (2016-)
- France Invited speaker at EcoSummit 2016 *Ecological Sustainability: Engineering Change*, Montpellier; collaborative research (August 2016)
- China Invited speaker and collaborator at Tsinghua University, Beijing; member of team signing MOU between universities on "Oklahoma Day" (June 2015)
- China Invited speaker and collaborator at Peking University, Beijing (June 2015)
- Scotland Speaker and research collaborator on sustainable water treatment technologies, Edinburgh (May 2015)
- Canada Research team member examining sustainable infrastructure applications, Victoria and Vancouver, British Columbia (2015)
- Japan Host to three members of Japan Oil Gas and Metals Corporation examining passive treatment technologies (2014)
- Bolivia Implementation of full-scale mine drainage passive treatment technologies in Andes; provided multiple bi-lingual presentations (2011)
- Japan Invited speaker and research collaborator on sustainability, Hokkaido University, Sapporo (2010)
- Canada Speaker and research collaborator on mine drainage biogeochemistry, Cape Breton University, Sydney, Nova Scotia (2010)
- Bolivia Interdisciplinary research team leader; taught bi-lingual four-day short course at La Universidad Autonoma "Tomas Frias"; collaboration country-wide (2008)

Bolivia	Coordination of non-profit efforts to help bring water and sanitation solutions to those in need (2008-)
Bolivia	Support of PhD student research on water quality and passive treatment, Cerro Rico de Potosi (2006-2010)
Ireland	Invited speaker and research collaborator in ecological engineering and metals biogeochemistry; National University of Ireland (2001-2002)
West Bank	Ground water quality collaborative research effort with Bethlehem University, hosted Palestinian scientists and engineers (2002)
Spain	Invited keynote speaker, Phytoremediation Workshop; European Cooperation in Science and Technology (EU COST), Madrid (2001)
Canada	Speaker and research collaborator on mine drainage passive treatment, Quebec City, Quebec (2000)
Great Britain	Invited speaker and research collaborator; University of Newcastle upon Tyne and UK Environment Agency, Northumberland and Durham (1998)
Croatia	Research collaborator, conservation and protection of Croatian freshwater wetlands, country-wide (1998)
Bermuda	Invited speaker, American Society of Limnology and Oceanography Dissertations Initiative for the Advancement of Limnology and Oceanography II Program, Bermuda Biological Station for Research (1998)
Croatia	Research collaborator; sustainable development of Croatian Adriatic coast with University of Zagreb and others, country-wide (1997)

TEACHING PHILOSOPHY

I believe that environmental science and engineering cannot be successfully taught solely in the classroom or from a textbook. Therefore, I place an emphasis on 'doing' in classroom, laboratory and field settings, and students are encouraged to pursue experiential learning, though the incorporation of research and real-world projects. Interactive teaching, including summative, formative, and motivational efforts, provides a foundation especially appropriate for environmental science and engineering learning, where the 'correct answers' (both technical and non-technical) are often complex and sometimes ambiguous.

TEACHING EFFORTS

Formal University Courses

As of January 2018, 14 courses developed/taught a total of 80 times; organized by course name, number, level, number of times taught, and brief description.

14. *Watershed Management and Restoration* (CEES 5873; graduate; pending fall 2018; Inter-disciplinary examination of watershed assessment, management, planning, protection, and restoration)
13. *Ecological Engineering Science* (CEES 5363; graduate; 10; Design of sustainable ecosystems that integrate human society with its natural environment for the benefit of both, using a systems perspective and focused on ecosystem restoration)
12. *Wetlands Science and Management / Wetlands Ecology* (CEES 5273 / ZOO 4970/5970 / BIOL 4970/5970 / BIOL 4553/5553; undergraduate/graduate; 10; Comprehensive field-based examination of biological, physical, chemical, and hydrological aspects of wetland ecosystem structure and function; intensive two-week biological station class)

11. *Environmental Biology and Ecology* (CEES 4324/5324; undergraduate/graduate; 15; Biological and ecological foundations of environmental science and engineering, emphasizing applied environmental biology, microbiology, ecology, and toxicology)
10. *Biological Aspects of Environmental Science* (ES 4324/5324; undergraduate/graduate, 6; Replaced by *Environmental Biology and Ecology*)
9. *Environmental Engineering and Science Capstone* (CEES 4903, 4905, 4913/4923; undergraduate; 17; Project- and team-driven comprehensive analysis of an open-ended, real-world problem involving extensive field and laboratory work, technical writing, and oral presentation)
8. *Hazardous and Solid Waste Management* (CEES 4263G, undergraduate/graduate; 5; Identification and classification of hazardous wastes; waste handling, transportation, treatment, and disposal techniques; federal and state legislation; and environmental and health effects)
7. *Professional Practice* (CEES 4803/4813; undergraduate; 5; Technical and non-traditional issues with emphases on the nature of professional practice related to organization, management, planning and execution of projects)
6. *Environmental Transport and Fate Processes* (CEES 2323, undergraduate; 1; Fate and transport of pollutants in surface water, ground water, air, soils, and sediments)
5. *Environmental Science II* (ES 3323 and 2323; undergraduate; 5; replaced by *Environmental Transport and Fate Processes*)
4. *Environmental Science Seminar* (ES 2111; undergraduate; 2; Current topics in environmental science and studies including guest speakers)
3. *Interdisciplinary Perspectives on the Environment: The Nature of Urban Sprawl* (IPE 1013; undergraduate; 1; Interdisciplinary team-taught examination of urban sprawl from the perspectives of the humanities, social sciences, and natural sciences)
2. *Introduction to Environmental Science* (ES 1112; undergraduate; 2; Development of skills necessary for success in environmental science education and careers)
1. *Water Quality Management* (CE 5873; graduate; 1; Integrated science of chemical, biological, and physical aspects of fresh water, estuarine and groundwater resources)

Invited Short Courses and Workshops

- July 2008 *I Curso Internacional En Tratamiento del Dam* (International Course on the Treatment of Acid Mine Drainage), La Universidad Autonoma "Tomas Frias" Potosi, Bolivia (taught in both English and Spanish)
- July 2002 *Fundamentals of Wetlands and Wetland Treatment*, U.S. Department of Interior, Bureau of Indian Affairs Workshop, Miami, OK
- June 2002 *Passive Treatment of Mine Drainage*, American Society of Mining and Reclamation, 19th Annual National Meeting, Lexington, KY
- April 1999 *Passive Treatment of Mine Waters*, National Conference on Tar Creek Abandoned Mine Reclamation, Miami, OK
- March 1999 *Functions and Values of Wetlands, Vital Components of the Land- and Water-scape*, U.S. EPA Region 6 Volunteer Monitors Conference, Lake Texoma, OK
- March 1998 *Wetlands and Water Quality*, Oklahoma Blue Thumb Volunteer Training, Midwest City, OK
- May 1992 *Passive Treatment of Polluted Coal Mine Drainage*, Jennings Environmental Learning Center, Moraine State Park, PA
- January 1992 *Passive Treatment of Polluted Coal Mine Drainage*, Pennsylvania Department of Environmental Resources, Ebensburg, PA
- January 1992 *Passive Treatment of Polluted Coal Mine Drainage*, Soil Conservation Service and Ohio Department of Natural Resources, Nelsonville, OH

- July 1991 *Passive Treatment Systems: Constructing Wetlands to Treat Coal Mine Drainage*, Soil Conservation Service Rural Abandoned Mine Program Training Session, Sutton, WV
- May 1991 *Treatment of Coal Mine Drainage with Constructed Wetlands*, Soil Conservation Service, National Rural Abandoned Mine Program Workshop, Pittsburgh, PA
- October 1990 *Construction of Wetlands for the Treatment of Polluted Coal Mine Drainage: A Workshop*, Clarion University Continuing Education Conference, Clarion, PA

Academic Program Leadership and Training

- 2015-2016 Environmental teaching laboratory refurbishment
- 2010-2011 Assisted in establishment of fundamentals of air quality course
- 2005-2007 Professional Practice course development leader
- 2004-2011 GAANN Fellow co-teaching/mentoring
- 2001-2007 Environmental Capstone Experience course development
- 2000-2002 Environmental Science and Engineering Mega-Course development
- 2000-2003 Educational Revolution Rapid Response Team
- 2000-2001 Environmental teaching laboratory refurbishment
- 2001 Supported student assistantship in multimedia
- 1999-2000 Environmental Science curriculum redevelopment effort
- 1999 Ecological Engineering Curriculum Development Workshop (The Ohio State University)
- 1999 How Students Perceive Us Professional Development Seminar
- 1999 Developing Web Curriculum Professional Development Seminar
- 1998 Working with Students Professional Development Seminar
- 1998 Teaching Students to Think Professional Development Seminar
- 1997-1999 Junior Faculty Seminar
- 1997 Interactive Educational Television Instructional Seminar
- 1997 New Faculty Professional Development Seminar

PROFESSIONAL SERVICE

Current Professional Society Memberships and Service

- American Ecological Engineering Society
Life Member, 2017
Field trip leader, 2015 Annual Meeting
- American Society of Mining and Reclamation
Life Member, 2003
President-Elect, 2012-13
President, 2013-14
Past President, 2014-15
National Executive Committee, 2003-2005
Chair, Memorial Scholarship Committee, 2000-2013
Technical Session Chair, numerous annual meetings
Web Committee Chair, 2003-2005
Water Management Technical Committee
Ecology Technical Committee
Tailings Technical Committee
- Association of Environmental Engineering and Science Professors
Host and local organizer for AEESP Distinguished Lecturer, 2015
- International Affiliation of Land Reclamationists
- International Mine Water Association

International Scientific Committee, 2017 Conference, Lapeenranta, Finland
International Scientific Committee, 2014 Conference, Xuzhou, China
International Scientific Committee, 2013 Conference, Golden, CO
International Scientific Committee, 2012 Conference, Bunbury, Australia
Student Presentation Judge, 2010 Conference, Sydney, Nova Scotia
Society of Wetland Scientists
South Central Chapter Executive Board, 2003-2004
Chair, South Central Chapter Technical Meeting, 2003
Education and Outreach Committee, 2003
Technical Session Chair, numerous annual meetings
Student Poster and Presentation Judge, numerous annual meetings

Past Professional Society Memberships

American Association for the Advancement of Science
American Society for Engineering Education
American Society of Agronomy
American Society of Limnology and Oceanography
Ecological Society of America
Geological Society of America
International Association for Ecology
International Association on Water Quality
International Water Resources Association
Oklahoma Academy of Science
Society for Ecological Restoration
Soil Science Society of America

Selected Additional Memberships

The Nature Conservancy
United Steelworkers of America, Associate Member
Working Class Studies Association

Professional Conference Organization

2014 Chair and Host, *31st National Meeting of the American Society of Mining and Reclamation*, Oklahoma City, OK (over 350 participants; workshops, multiple concurrent sessions, field trips)
2011 Chair, *Second International Water Technologies for Emerging Regions Conference*, Norman, OK (over 220 participants representing work in 38 nations on six continents)
2009 Chair, *Inaugural International Water Technologies for Emerging Regions Conference*, Norman, OK (over 170 participants representing work in 35 nations on six continents)
2003 Chair, *Society of Wetland Scientists South Central Chapter Technical Meeting*, University of Oklahoma Biological Station, Willis, OK (over 30 participants; presentations and field trips)

Journal Editorial Board Memberships

Ecological Engineering: The Journal of Ecosystem Restoration, 2015-present

Journal Article Reviews

Applied Environmental Research
BioResource Technology
Chemosphere

Ecological Engineering: The Journal of Ecosystem Restoration
Ecology
Environmental Earth Sciences
Environmental Engineering Science
Environmental Monitoring and Assessment
Environmental Pollution
Environmental Science and Technology
Environmental Technology
Environmental Toxicology and Chemistry
Global Ecology and Conservation
Green Lands
International Journal of Coal Geology
Journal of Arid Environments
Journal of Cleaner Production
Journal of Contaminant Hydrology
Journal of Environmental Engineering
Journal of Environmental Quality
Journal of Environmental Science
Journal of Geochemical Exploration
Journal of the Air and Waste Management Association
Journal of the American Society of Mining and Reclamation
Landscape and Urban Planning
Mine Water and the Environment
Northeastern Naturalist
Proceedings of the American Society for Surface Mining and Reclamation
Proceedings of the American Society of Mining and Reclamation
Science of the Total Environment
Sustainability of Water Quality and Ecology
The Quarterly Review of Biology
Transactions of the American Society of Agricultural and Biological Engineers
Water
Water Air and Soil Pollution
Water and Environment Journal
Water Research
Water Resources and Industry
Water Resources Research
Water Science and Technology
Wetlands

Book Reviews

- 2004 Ginat, J., F. R. Ragep and K.D. Hambright. 2004. Water in the Jordan Valley: Technical Solution and Regional Cooperation. University of Oklahoma Press.
 2000 Cronk, J.K. and M.S. Fennessy. 2001. Wetland Plants: Biology and Ecology, CRC Press.
 1998 Baarschers, W.H. 1996. Eco-Facts and Eco-Fiction: Understanding the Environmental Debate, Routledge.
 1995 Steinberg, C.E.W. and R.F. Wright. 1994. Acidification of Freshwater Ecosystems: Implications for the Future, Wiley.

Proposal Reviews

Canadian Foundation for Innovation
 Civilian Research and Development Foundation
 Hudson River National Estuarine Research Reserve
 INDO-US Science and Technology Forum
 Mitacs Elevate Post-Doctoral Fellowship Program (Canada)
 National Science Foundation Kansas EPSCoR First Award Program
 New York Sea Grant
 Ohio Agricultural Research and Development Center
 Oklahoma Conservation Commission
 Southern Plains Transportation Center
 State of Idaho
 State of Oklahoma
 Thomas F. and Kate Miller Jeffress Memorial Trust
 U.S. Department of Interior
 U.S. Department of State
 U.S. Environmental Protection Agency

Tenure, Promotion and Program Review

Bucknell University (PA) – promotion
 George Mason University (VA) - tenure and promotion
 Ohio University (OH) - tenure and promotion
 Pittsburg State University (KS) - tenure and promotion
 Texas A & M-Corpus Christi (TX) - Environmental Science program
 The Ohio State University (OH) - tenure and promotion
 The Pennsylvania State University (PA) - tenure and promotion
 University of Auckland (NZ) - tenure and promotion
 University of Tennessee (TN) – promotion
 West Virginia University (WV) – tenure and promotion

UNIVERSITY SERVICE

University of Oklahoma
 Environmental Leadership Search Committee, 2015-2017 (Corix Chair, Water Survey, WaTER leadership positions combined search effort)
 Provost's Community Engagement Working Group, 2015-present (Research Opportunities Committee, Chair; Experiential Learning Committee, member)
 Tsinghua University Memorandum of Understanding Signing Team (Beijing, China), 2015
 Corix Utilities Collaboration Team (British Columbia, Canada), 2015
 Research Committee, Chair, CEES, 2014-present
 Zero Waste Committee, CEES, 2015
 Research Liaison, academic unit representative to Vice President for Research, 2014-present
 Water/Energy/Climate Nexus Strategic Planning Committee, 2014-2016
 Water Innovation Laboratory Planning Committee, 2012-2013, 2014-2015
 Sanitation Faculty Search Committee, Civil Engineering and Environmental Science, 2012-2013
 College of Engineering Policies and Procedures 03 Faculty Task Force, 2012-2013
 Kessler Atmospheric and Ecological Field Station, Steering Committee, 2012-2013, 2014-present
 Executive Committee A, Interdisciplinary Perspectives on the Environment, 2011-2013

Research Liaison, academic unit representative to Vice President for Research, 2010-2013
 Faculty Marshall, College of Engineering Convocation, 2003, 2004
 Technology Area Leader, Institute for Oklahoma Technology Applications, 2003-2008
 Advisor, Environmental Science Student Association, 1998-2002, 2009-2013, 2015-present
 Executive Committee A, CEES, 2004-2007
 Computing Committee, CEES, 2002-2006
 Program Outcomes Committee, CEES, 2000-2005
 Educational Revolution Rapid Response Team, CEES, 2000-2003
 Undergraduate Curriculum Committee, CEES, 2000-2013
 Technology Software and Review Committee, CEES, 2000-2013
 Environmental Teaching Laboratory Oversight Committee, CEES, 1998-2008
 Scholarship Committee, CEES, 1998-1999
 Environmental Science Curriculum Redesign Committee, CEES, 1997-2000
 Panelist, English Assessment Program, as needed
 Speaker, Faculty Senate Speakers Service, as needed
 Judge, Graduate College Student Poster Competition, as needed
 The Ohio State University
 Environmental Science Graduate Studies Committee, 1995-1996

EXTERNAL SERVICE AND COMMUNITY ENGAGEMENT

Numerous class and senior capstone projects involving municipalities (e.g., Norman, Altus, Grove, Blanchard, Commerce), state agencies (e.g., Department of Environmental Quality, Grand River Dam Authority, Oklahoma Conservation Commission), tribes (e.g., Quapaw Tribe of Oklahoma), and non-profit organizations (e.g., Little River Zoo, Friends of Bishop Creek, Watershed Restoration Incorporated, various home owners' associations)
 Storm Water Infrastructure Public Panel, City of Norman, 2017
 Chromium VI in Drinking Water Technical Advisory Committee, City of Norman, OK, 2011-present
 Prairie River Park Planning Coordination Team, 2011-present
 Storm Water Master Plan Task Force, City of Norman, OK, 2010-2014
 Oklahoma Wetland Water Quality Standards Technical Advisory Group, 2012-present
 Jefferson Elementary School Outdoor Classroom Project Co-coordinator, 2008-2014
 Oklahoma Comprehensive Water Plan, Regional Input Meetings Alternate, 2008-2010
 Engineers in Action, 2008-present
 Oklahoma Stream Team, 2006-2012
 Big Event (Public Service Day), 2005-present
 Watershed Restoration Incorporated, 2004-present
 Oklahoma Unified Watershed Assessment Working Group, 2003-2005
 Oklahoma Museum of Labor and Mining, Curriculum Advisory Committee, 2003
 White House Council on Environmental Quality, Tar Creek Coordinating Team, 2001-2002
 Tar Creek Superfund Site Task Force, Water Quality Subcommittee, 2000-2001
 Standard Methods for Examination of Water and Wastewater, Acidity Task Group Chair, 1999-2000
 Tar Creek Watershed Restoration Technical Advisory Committee, 1998-2002
 Oklahoma Wetlands Working Group, 1998-present
 Oklahoma Nonpoint Source Pollution Working Group, 1998-present
 Oklahoma Water Quality and Wetlands Technical Advisory Group, 1997-2000
 Oklahoma Conservation Commission, OU CEES Liaison, 1997-2003
 Boy Scouts of America, merit badge counselor, 1983-1992, 2009-present

ADDITIONAL PUBLIC CONTRIBUTIONSUniversity Libraries *Books That Inspire* Exhibit

2012 *The Lorax* by Dr. Seuss (Theodor Seuss Geisel) with Maria E. Nairn

2007 *Wilderness Bonanza: The Tri-State District of Missouri, Kansas and Oklahoma* by Arrell M. Gibson

2001 *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values* by Robert M. Pirsig

Popular Media Contributions

Documentary films and Television Programs (see http://www.imdb.com/name/nm3591261/?ref=fn_al_nm_1)

Tar Creek (2009), feature-length environmental documentary

Remediating Tar Creek Superfund Site (2016), student-produced short film

History Channel: *Life After People: Toxic Revenge* (2010)

Discovery Channel: *Forgotten Planet: Pripyat/Picher* (2011)

Discovery Channel: *Forgotten Planet: Abandoned America* (2011)

Selected newspaper coverage, interviews, and features (many with online content)

Beaver County Times (Beaver, PA)

Columbus Dispatch (Columbus, OH)

Daily Oklahoman (Oklahoma City, OK)

El Potosi (Potosi, Bolivia)

Grand Lake News (Grove, OK)

Joplin Globe (Joplin, MO)

Miami News-Record (Miami, OK)

Norman Transcript (Norman, OK)

Oklahoma Daily (Norman, OK)

Okmulgee Times (Okmulgee, OK)

Pryor Daily Times (Pryor, OK)

Red Dirt Report (Oklahoma City, OK)

The Journal-Record (Oklahoma City, OK)

Tri-State Tribune (Picher, OK)

Tulsa World (Tulsa, OK)

Selected television/radio news interviews and features (many with online content)

KFJX television (Joplin, MO/Pittsburg, KS)

KGOU/KROU radio (Norman, OK)

KOAM television (Joplin, MO/Pittsburg, KS)

KOCO television (Oklahoma City, OK)

KOTV television (Tulsa, OK)

KRMG radio (Tulsa, OK)

KTUL television (Tulsa, OK)

KTUZ television (Telemundo Oklahoma City, OK)

National Public Radio (NPR)

State Impact Oklahoma (aired during *Morning Edition* and *All Things Considered*)

OETA television (Oklahoma Public Broadcasting)

OU Nightly (Norman, OK)

WDTV television (Bridgeport/Morgantown, WV)

Selected magazine features and related archival publications

The Rotarian (May 2014, 192(11): 32-44)

"*The Troubled Waters of Potosi*" (cover story; circulation > 1.2 million)
Civil Engineering (American Society of Civil Engineers, March 2013, 83(3): 34)
 "Researchers Test Passive System for Treating Mine Contamination in Bolivia" (circulation > 140,000)
Frontiers in Ecology and the Environment (Ecological Society of America, March 2013, 11(2): 60-64)
 "Ecological solutions to mine pollution" (circulation > 10,000)
Oklahoma Today: Sustainability 2010 - The Conservation Issue (May/June 2010)
Water Quality Products Magazine (February 2011)
Community Impact Report (OU VP for Administration and Finance, 2011-2017)
OU Forum (April 2017)
OU Routes (April 2010)
Evolve (OU College of Engineering)
 "Groundwater Contamination" (Fall 2002)
 "Evolve Feature: Going with the Flow" (Fall 2008)
 "Research Snapshot: Tar Creek Superfund Site Water Restoration Effort" (Fall 2012)
OU Engineer (OU College of Engineering)
 "Cleaning Water in the Wastelands: Whether in the conference room, classroom or contaminated water site, Robert Nairn's leadership affects change" (Fall 2014)
CEES Communique (multiple articles, 2000-2018)

Selected World Wide Web interviews, features and blogs

Bolivian Thoughts
Chesapeake Bay Journal
Civil Engineering
E! Science News
EurekaAlert (American Association for the Advancement of Science global source for science news)
Frontiers in Ecology and the Environment
Good+You, The Social Network for Social Good
Living Green
Medical News Today
News21
NewsWise
NewsOK.com
ScienceisOK.com (video)
Science Daily
Science News
ThisScientistisOK (*ScienceisOK.com*, video)
Txchnologist.com
Water Environment and Technology

TRAINING AND CERTIFICATIONS

2017	LGBTQ Faculty Ally Training, University of Oklahoma, Norman, OK
2016	Green Zone (Veteran Support Alliance) Training, University of Oklahoma, Norman, OK
2016-2017	Sooner Fire Safety, University of Oklahoma, Norman, OK
2015-2017	Campus Security Authority Training (Clery Act), University of Oklahoma, Norman, OK
2016	Travel Card Training, University of Oklahoma, Norman, OK
2015	Active Shooter Training, University of Oklahoma, Norman, OK

- 2015 Tuberculosis Safety Training, University of Oklahoma Environmental Health and Safety Annual Training, Norman, OK
- 2012-2017 Radiation Safety Training, University of Oklahoma Environmental Health and Safety Annual Training, Norman, OK
- 2006-2013 Hazardous Waste Operations and Emergency Response Training, 8-Hour Refresher, 29CFR 1910.120, Occupational Safety and Health Administration
- 2005-2017 Hazard Communication/General Safety Training, University of Oklahoma Environmental Health and Safety Annual Training, Norman, OK
- 2005-2017 Laboratory Safety Training, University of Oklahoma Environmental Health and Safety Annual Training, Norman, OK
- 2005-2017 Department of Transportation Shipping Training, University of Oklahoma Environmental Health and Safety Annual Training, Norman, OK
- 2003 Basic Assessment and Restoration of Degraded Streams, Oklahoma Department of Wildlife Conservation, Willis, OK
- 2002 Passive Treatment of Mine Drainage: Practical Applications and Lessons Learned, American Society of Mining and Reclamation, Lexington, KY
- 2002 Wetland Plant Identification, U.S. Environmental Protection Agency, Idabel, OK
- 2002-2012 Hazardous Waste Operations and Emergency Response Training, 40-Hour Technician, 29CFR 1910.120, Occupational Safety and Health Administration
- 2000 Wetlands Regulatory Program Training, U.S. Army Corps of Engineers, Little Rock, AR
- 1995 Field Indicators for Identifying Hydric Soils, Society of Wetland Scientists, Boston, MA
- 1990 Bioassay Toxicity Testing Training, University of Milwaukee, Milwaukee, WI
- 1989 New Miner Training, 30CFR 46.5, Mine Safety and Health Administration, Pittsburgh, PA

CONSULTING EXPERIENCE

Engineers In Action, Inc.	Non-profit dedicated to water and sanitation issues in Bolivia
Watershed Restoration, Inc.	Non-profit dedicated to watershed restoration and management, wetland, and stream restoration
CC Environmental, LLC	Passive treatment system design and construction oversight, general environmental science consulting
Robert W. Nairn Environmental Consulting	Independent professional consulting including expert testimony, surface and groundwater contamination, ecosystem restoration
Hedin Environmental, Inc.	Mining-impacted watershed characterization and impact analysis; iron oxide product characterization and beneficial utilization
Mitsch and Associates, Inc.	Municipal wastewater treatment wetland design and monitoring; stream water quality impact analysis
Civil and Environmental Consultants, Inc.	Groundwater/surface water monitoring and analysis

SELECTED AWARDS RECEIVED BY RESEARCH STUDENTS (in alphabetical order)

- Andrews, William J.
- 2007 Air and Waste Management Association Oklahoma Chapter Scholarship
 - 2006 OU Graduate Student Senate Conference and Creative Exhibition Grant
 - 2007 OU Graduate Student Senate Conference and Creative Exhibition Grant
 - 2004-2007, Department of Education Graduate Assistance in Areas of National Need Fellowship
 - 2005 American Society of Mining and Reclamation PhD Memorial Scholarship

Arango, Juan

- 2017 OU GIS Day Best Student Poster
- 2013-2014 Grand River Dam Authority Graduate Fellowship

Arvidson, Virginia

- 2000 OU Graduate Student Research Award

Athay, Denae

- 2003 American Society of Mining and Reclamation Best Student Presentation Award
- 2003 OU Graduate Student Senate Research Award
- 2001 American Society for Surface Mining and Reclamation Best Student Presentation Award
- 2000 Society of Wetland Scientists South Central Chapter Best Presentation Award

Berg-Mattson, Noah

- 2015 Oklahoma Clean Lakes and Watersheds Association Student Poster Contest, First Place

Bible, Misty

- 1998 Oklahoma Academy of Science Best of Academy Award

Brumley, Jessica D.

- 2014 American Society of Mining and Reclamation Best Student Presentation
- 2004-2007 Department of Education Graduate Assistance in Areas of National Need Fellowship
- 2002 American Society of Mining and Reclamation Best Student Presentation

Coffey, Jennifer

- 2003 OU Graduate Student Senate Research Award
- 2001-03 Louis Stokes Oklahoma Alliance for Minority Participation in Science, Mathematics, Engineering and Technology Scholarship Award

DuBois, Chris

- 2000 OU Graduate Student Research Award

Dutnell, Russell C.

- 2008-2012, Department of Education Graduate Assistance in Areas of National Need Fellowship
- ES4903 Environmental Science and Engineering Senior Problem Solving Capstone Experience
- 2001 Oklahoma Public Health Excellence Award

Fielding, Ellen

- 2017 American Society of Mining and Reclamation Best Student Presentation, First Place

Furneaux, Brendan R.

- 2014 American Society of Mining and Reclamation Honorable Mention Best Student Presentation
- 2011-2012 Grand River Dam Authority Graduate Fellowship

Garrett, Russell A.

- 2003 OU Graduate Student Senate Research Award

Garrido, Alan E.

- 2009 American Society of Mining and Reclamation Best Student Presentation Award
- 2009 American Society of Mining and Reclamation Travel Grant
- 2008 OU Presidential International Travel Fellowship

Holzbauer-Schweitzer, Brandon

- 2017 OU Graduate College Robberson Research and Creative Endeavors Grant
- 2017 American Society of Mining and Reclamation Travel Grant
- 2017 Oklahoma State University Student Water Conference Poster Competition, First Place
- 2016 Oklahoma Clean Lakes and Watersheds Association Student Poster Contest, Second Place
- 2015 Oklahoma Clean Lakes and Watersheds Association Student Poster Contest, First Place
- 2015 Gallogly College of Engineering Graduate Student Community Poster Fair, Third Place

Iverson, Niki J.

- 2003 OU Graduate Student Senate Research Award

LaBar, Julie A.

- 2014 OU Graduate College Robberson Research and Creative Endeavors Grant
- 2012-2015 Grand River Dam Authority Graduate Fellowship
- 2012 American Society of Mining and Reclamation PhD Memorial Scholarship
- 2011 American Society of Mining and Reclamation Student Research Grant
- 2010-2013 Department of Education Graduate Assistance in Areas of National Need Fellowship

Lipe, Stephanie

- 2000 OU Honors College Best Presentation Award
- 2000 Oklahoma EPSCoR Capitol Research Day Presenter
- 1999 Rhodes Scholarship Regional Finalist

Mercer, Matthew N.

- 1998 OU Graduate Student Research Award

Neely, Cody A.

- 2010 American Society of Mining and Reclamation Best Student Presentation Award

Oxenford, Leah R.

- 2014 American Society of Mining and Reclamation Honorable Mention Best Student Presentation
- 2013 University of Science and Arts of Oklahoma Board of Regents Award for Superior Teaching
- 2013 American Society of Mining and Reclamation Best Student Presentation Award
- 2012 American Society of Mining and Reclamation Best Student Presentation Award
- 2011 American Society of Mining and Reclamation PhD Memorial Scholarship
- 2010 American Society of Mining and Reclamation Best Student Presentation Award
- 2008 OU Presidential International Travel Fellowship

Page, Bryan J.

- 2015 American Society of Mining and Reclamation Masters Memorial Scholarship

Porter, Clint M.

- 2003 Society of Wetland Scientists South Central Chapter Presentation Award
- 2003 Benjamin Cummings Environmental Science Earth Day Scholarship
- 2003 American Society of Mining and Reclamation Masters Memorial Scholarship
- 2003 OU Graduate Student Senate Research Award

Santamaria, Beatriz E.

- 2009 OU Graduate College Robberson Travel Grant
- 2009 Colombian OU Alumni Association Scholarship
- 2009 American Society of Mining and Reclamation Travel Grant
- 2008 OU Biological Station Scholarship
- 2008 OU Presidential International Travel Fellowship

Shepherd, Nicholas

- 2017 OU Graduate College Robberson Conference Presentation Travel Grant
- 2017 American Society of Mining and Reclamation Travel Grant
- 2016 American Society of Mining and Reclamation Best Student Presentation, Second Place
- 2016 Oklahoma Clean Lakes and Watersheds Association Student Poster Contest, Second Place
- 2014 American Society of Mining and Reclamation Honorable Mention Best Student Presentation

Sikora, Amy

- 2017 Oklahoma Governors Water Conference and Research Symposium, Outstanding Poster
- 2017 American Society of Mining and Reclamation Best Student Poster, First Place

Smith, Melissa and Angie Spence

- 1999 OU Honors College Best Presentation Awards

Strosnider, William H.

- 2010 American Society of Mining and Reclamation Best Student Presentation Award

2009 American Society of Mining and Reclamation PhD Memorial Scholarship
 2009 American Society of Mining and Reclamation Travel Grant
 2009 OU Graduate Student Senate Travel Grant
 2009 Universität Hamburg Wetland Science and Management Study Scholarship
 2008 American Society of Mining and Reclamation Best Student Presentation Award
 2007 American Society of Mining and Reclamation Best Student Presentation Award
 2006 OU Graduate Student Senate Research and Activity Grant
 2006 OU Graduate College Robberson Conference Presentation Travel Grant
 2005-2008 Department of Education Graduate Assistance in Areas of National Need Fellowship
 2005, 2007, 2008 OU Presidential International Travel Fellowships

Tang, Zepei

2017 American Society of Mining and Reclamation Travel Grant

White, Rebecca L.

2004-2005, Department of Education Graduate Assistance in Areas of National Need Fellowship

Yepez (née Carter), Sarah A.

2010 American Society of Mining and Reclamation Student Research Grant

2010-2011 Grand River Dam Authority Graduate Fellowship

Ziebro, Becky S.

1998 OU Graduate Student Research Award

ORAL PRESENTATIONS, POSTERS, AND PUBLISHED ABSTRACTS (* = invited presentation, ** = invited plenary lecture; through January 2018, not exhaustive and does not include conference presentations with published proceedings)

339. *Nairn, R.W. November 2017. Stream Recovery in a Mining-Impacted Watershed: Ecotoxic Metal removal in Passive Treatment Systems at the Tar Creek Superfund Site. University of Tulsa Engineering Seminar, Tulsa, OK.
338. Arango, J.G. and R.W. Nairn. November 2017. Prediction of Secchi Disk Measurements in Grand Lake o' the Cherokees, Lake Hudson and Lake Texoma Using Landsat 7 Images. University of Oklahoma GIS Day, Norman OK (poster)
337. *Nairn, R.W. November 2017. Environmental Science Research at OU CEES and CREW. CEES 1112, Norman, OK
336. *Nairn, R.W. October 2017. The Center for Restoration of Ecosystems and Watersheds and Water Technologies for Emerging Regions Center at OU. U.S. EPA Region 6 Tribal Training Workshop on Surface Water Quality Monitoring, Norman, OK
335. *Nairn, R.W. October 2017. Research in the Center for Restoration of Ecosystems and Watersheds. Environmental Science Student Association, Norman, OK.
334. *Nairn, R.W. October 2017. Graduate School Opportunities (or How Do I Figure Out What I Want to Do with My Life). Environmental Science Student Association, Norman, OK.
333. Holzbauer-Schweitzer, B.K. and R.W. Nairn. October 2017. Utilizing Small Unmanned Aerial System-Derived Imagery to Evaluate Water Quality. 38th Annual Oklahoma Governor's Water Conference and Research Symposium, Norman, OK (poster)
332. Nguyen, D.X. and R.W. Nairn. October 2017. Evaluation of Various Reactive Media for Bioretention Cell Design Considerations. 38th Annual Oklahoma Governor's Water Conference and Research Symposium, Norman, OK (poster)
331. Sikora, A. and R.W. Nairn. October 2017. Soil Trace Metals Concentrations in a Mining Impacted Agricultural Watershed. 38th Annual Oklahoma Governor's Water Conference and Research Symposium, Norman, OK (poster)

330. Tang, Z. and R.W. Nairn. October 2017. Phosphorus, Iron and Trace Metal Interactions at the Sediment-Water Interface: The Role of Recovered Mine Drainage Residuals. 38th Annual Oklahoma Governor's Water Conference and Research Symposium, Norman, OK (poster)
329. *Nairn, R.W. September 2017. "Two Down... Many More to Go": Successful Mine Water Passive Treatment Under Considerable Design Constraints. 19th National Tar Creek Conference, Miami, OK.
328. Arango, J.G. and R.W. Nairn. September 2017. Prediction of Secchi Disk Measurements in Grand Lake o' the Cherokees, Lake Hudson and Lake Texoma Using Landsat 7 Images. 19th National Tar Creek Conference, Miami, OK (poster)
327. Holzbauer-Schweitzer, B.K. and R.W. Nairn. September 2017. Utilizing Small Unmanned Aerial System-Derived Imagery to Evaluate Water Quality. 19th National Tar Creek Conference, Miami, OK (poster)
326. Ingendorf, J.D., M. Zhang and R.W. Nairn. September 2017. Characterizing Selected Organic Substrates in Batch Reactors to Evaluate Sulfate Removal. 19th National Tar Creek Conference, Miami, OK (poster)
325. Shepherd, N.L. and R.W. Nairn. September 2017. The Effects of *Castor canadensis* (North American Beaver) Repopulation on a Mine Drainage Impacted Stream. 19th National Tar Creek Conference, Miami, OK (poster)
324. Sikora, A.L. and R.W. Nairn. September 2017. Soil Trace Metals Concentrations in a Mining Impacted Agricultural Watershed. 19th National Tar Creek Conference, Miami, OK (poster)
323. Tang, Z. and R.W. Nairn. September 2017. Phosphorus, Iron and Trace Metal Interactions at the Sediment-Water Interface: The Role of Recovered Mine Drainage Residuals. 19th National Tar Creek Conference, Miami, OK (poster)
322. *Nairn, R.W. and K.A. Nairn. August 2017. Water Conservation and Wellness (or How to Make Yourself Feel Good About Your Water Use). OU Wellness Program Luncheon Seminar, Norman, OK.
321. *Nairn, R.W. and K.A. Nairn. August 2017. Water Conservation Leading to Wellness. OU Wellness Program Luncheon Seminar, Norman, OK.
320. Matthews, W.J., R.W. Nairn, N. Shepherd, Z. Zbinden, A. Geheber, and E. Marsh-Matthews. July 2017. Fishes of a Heavy Metal Contaminated Stream After Operation of a Passive Treatment System for a Decade – and a New Opportunity (That is Working). Joint Meeting of Ichthyologists and Herpetologists, Austin, TX.
319. *Cooper, T., D. Stephenson, R. Beadle, B. Strosnider and R.W. Nairn. May 2017. Kumurana Bolivia Project Update. Rotary Club of Ada, Ada, OK.
318. Nairn, R.W., J. LaBar, L. Oxenford, B. Page and N. Shepherd. May 2017. Stream Recovery in a Mining-Impacted Watershed: Ecotoxic Metal Removal in Passive Treatment Systems Through Targeted Mechanisms in Multiple Process Units. 17th Annual Meeting of the American Ecological Engineering Society, Athens, GA.
317. Holzbauer-Schweitzer and R.W. Nairn. May 2017. Evaluating Low Impact Development Best Management Practices as an Alternative to Traditional Urban Stormwater Management. 17th Annual Meeting of the American Ecological Engineering Society, Athens, GA
316. **Nairn, R.W. and William H.J. Strosnider. April 2017. Why Aren't All Reclamationists Considered Ecological Engineers? 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV (plenary lecture)
315. Nairn, R.W., T. Danehy, C. Neely, R. Dutnell, B. Page, N. Shepherd, D. Cates and B. Stanila. April 2017. Challenges of Designing and Building a Passive Treatment System with Limited Topography, Hydraulic Head and Available Land Area. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.

314. Oxenford, L. and R.W. Nairn. April 2017. Seasonal Storm-Induced Metal Transport Dynamics Between Oxidative Passive Treatment Cells. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
313. Oxenford, L. and R.W. Nairn. April 2017. Iron Transport and Removal Dynamics in the Oxidative Unit of a Passive Treatment System: A Five-Year Performance Evaluation. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
312. LaBar and R.W. Nairn. April 2017. Evolution of Trace Metal Removal Products in Field-Scale Vertical Flow Bioreactors. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
311. Page, B.J. and R.W. Nairn. April 2017. Quantifying Hydraulic Conductivity in Mine Drainage Passive Treatment System Vertical Flow Bioreactors. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
310. Shepherd, N. and R.W. Nairn. April 2017. The Effects of *Castor canadensis* (North American Beaver) Repopulation on a Mine Drainage Impacted Stream. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
309. Fielding, E. and R.W. Nairn. April 2017. Zinc and Nickel Sorption and Desorption Using a Mixed Algae Community Collected from a Mine Drainage Passive Treatment System. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV.
308. Tang, Z. and R.W. Nairn. April 2017. Phosphorus, Iron and Trace Metal Interactions at the Sediment Layer-Water Column Interface: The Role of Recovered Mine Drainage Residuals. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV (poster)
307. Sikora, A.L. and R.W. Nairn. April 2017. Evaluation of Risk Posed by Trace Metals in Soils of a Mining-Impacted Agricultural Watershed. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV (poster)
306. Holzbauer-Schweitzer, B.K. and R.W. Nairn. April 2017. Utilizing an Unmanned Aerial System and a High Resolution Multi-Spectral Sensor to Evaluate Ecosystem Health and Predict Surface Water Quality. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV (poster)
305. **Rose, A., J. Skousen, C. Zipper, P. Ziemkiewicz, R. Nairn, L. McDonald, and R. Kleinmann. April 2017. A Review of Passive Treatment Technology. 2017 Joint Conference of the American Society of Mining and Reclamation (ASMR), Appalachian Regional Reforestation Initiative (ARRI) and West Virginia Mine Drainage Task Force (WVMDTF), Morgantown, WV (plenary lecture).
304. *Nairn, R.W. March 2017. Optimizing the Role of Natural Infrastructure in Watershed-Based Approaches. Oklahoma State University Student Water Conference, Stillwater, OK.
303. *Nairn, R.W. March 2017. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. GEOG 1203 Global Environmental Issues, Norman, OK.
302. Matthews, W.J., R.W. Nairn, N. Shepherd, Z. Zbinden, A. Geheber, and E. Marsh-Matthews. February 2017. Fishes of a Heavy Metal Contaminated Stream (Tar Creek, Ottawa County,

Oklahoma) After Operation of a Passive Treatment System for a Decade – and a “New Opportunity”. American Fisheries Society, Southern Division Meeting, Oklahoma City, OK.

301. *Nairn, R.W. January 2017. Optimizing the Role of Natural Infrastructure in Watershed-Based Approaches. American Society of Civil Engineers Tulsa Branch Meeting, Tulsa, OK

2016

300. Brumley, J. and R.W. Nairn. November 2016. Energy-Based Indices to Evaluate Wetland Health and Services. Joint Meeting of the Society of Wetland Scientists South Central and South Atlantic Chapters and Gulf Estuarine Research Society, Pensacola Beach, FL

299. *Nairn, R.W., November 2016. Research in the Center for Restoration of Ecosystems and Watersheds. CEES Seminar, Norman, OK.

298. Holzbauer-Schweitzer, B. and R.W. Nairn. October 2016. Evaluating Low Impact Development Best Management Practices for Urban Storm Water Management: A Paired Watershed Approach. 18th Annual Environmental Protection Agency Region 6 Stormwater Conference, Oklahoma City, OK.

297. *Nairn, R.W. September 2016. Optimizing the Role of Natural Infrastructure in Watershed-Based Approaches. Big 12 Water Conference, Baylor University, Waco, TX.

296. *Nairn, R.W. September 2016. Passive Treatment Systems for Mine Water Quality Improvement (Addressing 37 years of Reversible “Irreversible Damage”), 18th National Tar Creek Conference, Miami, OK.

295. *Nairn, R.W. September 2016. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. BIOL3403 Principles of Ecology, Norman, OK.

294. Nairn, R.W., B.K. Holzbauer-Schweitzer, N. Berg-Mattson and M. Rice. July 2016. A Paired Watershed Approach to Evaluate Low Impact Development Practices on Stormwater Quality and Quantity. City of Norman Environmental Control Advisory Board, Norman, OK

293. *Nairn, R.W., J. LaBar, L. Oxenford, J. Arango, B. Holzbauer-Schweitzer, B. Page, N. Shepherd and R.C. Knox. September 2016. Designing Ecosystem Biogeochemical Processes to Improve Water Quality in Drastically Disturbed Watersheds. 5th International EcoSummit: Ecological Sustainability Engineering Change, Montpellier, France.

292. Nairn, R.W. June 2016. Comprehensive Watershed Restoration via Ecological Engineering: The Role of Passive Treatment. 33rd Annual Meeting of the American Society of Mining and Reclamation: Reclaiming the West. Spokane, WA.

291. Shepherd, N.L. and R.W. Nairn. June 2016. Hydraulic and Biological Maintenance Challenges and Solutions in an Aging Passive Treatment System. 33rd Annual Meeting of the American Society of Mining and Reclamation: Reclaiming the West. Spokane, WA. (poster)

290. Page, B.J., N.L. Shepherd and R.W. Nairn. June 2016. Design and Construction Challenges for the Southeast Commerce Passive Treatment System. 33rd Annual Meeting of the American Society of Mining and Reclamation: Reclaiming the West. Spokane, WA. (poster)

289. LaBar, J.A. and R.W. Nairn. June 2016. A Paired Comparison Study to Evaluate the Effect of Ionic Strength on Trace Metal Removal Products in a Vertical Flow Bioreactor Substrate. 33rd Annual Meeting of the American Society of Mining and Reclamation: Reclaiming the West. Spokane, WA.

288. Oxenford, L. and R.W. Nairn. June 2016. Determination of Hydraulic Retention Time for Passive Treatment System Oxidative Units Using Rhodamine. 33rd Annual Meeting of the American Society of Mining and Reclamation: Reclaiming the West. Spokane, WA.

287. *Nairn, R.W. April 2016. Update on Grand River Dam Authority and Mine Drainage Passive Treatment Projects, CEES Visiting Council, Norman, OK.

286. *Nairn, R.W. April 2016. Reversing the Irreversible: Solving Intractable Environmental Pollution Problems in Oklahoma. Earth Day Symposium, Norman, OK.

285. *Nairn, R.W. April 2016. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. ENGR4510G Introduction to Environmental Health, Norman, OK.
284. Garrido, A., W. Strosnider and R. Nairn. April 2016. Metal-Contaminated Potato Crops and Potential Human Health Risks in Bolivian Mining Highlands. New Mexico Geological Society Annual Spring Meeting, Socorro, NM.
283. Nairn, R.W., B. Holzbauer-Schweitzer, N. Berg-Mattson and M.J. Rice. March 2016. A Paired Watershed Approach to Evaluate Low Impact Development Practices on Stormwater Quality and Quantity. 25th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK.
282. Holzbauer-Schweitzer, B., N. Berg-Mattson and R.W. Nairn. March 2016. Evaluating Low Impact Development Best Management Practices for Urban Storm Water Management: A Paired Watershed Approach. 25th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK. (poster)
281. Shepherd, N., W.J. Matthews, R.W. Nairn, Z. Zbinden, A. Geheber, J. Barkstedt and N. Franssen. March 2016. Fishes of a Contaminated Stream after Operation of a Passive Treatment System. 25th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK. (poster)
280. Page, B.J., N. Shepherd and R.W. Nairn. March 2016. Design and Construction Challenges for the Southeast Commerce Passive Treatment System. 25th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK. (poster)
279. Holzbauer-Schweitzer, B., N. Berg-Mattson and R.W. Nairn. March 2016. Evaluating Low Impact Development Best Management Practices for Urban Storm Water Management: A Paired Watershed Approach. 2nd Biennial Great Plains Low Impact Development Research and Innovation Symposium, Omaha, NE. (poster)
278. *Miller, G.A. and R.W. Nairn. January 2016. Programs in the School of Civil Engineering and Environmental Science at the University of Oklahoma. Oklahoma Aggregates Association Annual Meeting, Norman, OK.

2015

277. *Nairn, R.W., November 2015. Research in the Center for Restoration of Ecosystems and Watersheds. Environmental Science Student Association, Norman, OK.
276. *Nairn, R.W., November 2015. Graduate School Opportunities (or how do I figure out what I want to do with my life). Environmental Science Student Association, Norman, OK.
275. *Nairn, R.W., November 2015. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. CEES Seminar, Norman, OK.
274. *Nairn, R.W., November 2015. Environmental Science at OU CEES. CEES 1112, Norman, OK.
273. Holzbauer-Schweitzer, B. and R.W. Nairn. November 2015. Urban Stormwater Runoff Quality and Quantity Abatement: A Paired Watershed Approach. OU Gallogly College of Engineering Graduate Student Community Poster Fair, Norman, OK. (poster)
272. Holzbauer-Schweitzer, B., N. Berg-Mattson and R.W. Nairn. October 2015. Urban Stormwater Runoff Quality and Quantity Abatement: A Paired Watershed Approach. 17th Annual Environmental Protection Agency Region 6 Stormwater Conference, Hot Springs, AR. (poster)
271. Strosnider, W.J., B. Winfrey, R. Peer, J. McCloskey, J. Chastel, P. Smyntek and R.W. Nairn. September 2015. Passive Co-Treatment of Mine Drainage with Sewage: An Approach to Save Material, Energy, and Fiscal Resources. 2015 Environmental Considerations in Energy Production. Appalachian Research Initiative for Environmental Science, Pittsburgh, PA
270. Behum, P.T., R.W. Nairn, and M. Sharp. September 2015. Long-term Passive Treatment of the Acid Mine Drainage at the LeBosquet No. 1 Mine, LeFlore County Oklahoma. 37th Annual Conference of the National Association of Abandoned Mine Lands Programs, Santa Fe, NM.

269. *Nairn, R.W., September 2015. A Brief History of Mine Water at the Tar Creek Site. 17th National Tar Creek Conference, Miami, OK.
268. *Nairn, R.W., June 2015. Reversing the Irreversible with Ecological Engineering: Passive Treatment of Metal-Contaminated Mine Waters in a Drastically Disturbed Watershed. OU Day, Tsinghua University, Beijing, China.
267. *Nairn, R.W., June 2015. Reversing the Irreversible with Ecological Engineering: Passive Treatment of Metal-Contaminated Mine Waters in a Drastically Disturbed Watershed. Peking University, Beijing, China.
266. Nairn, R.W., J.A. LaBar, L.R. Oxenford, B.J. Page, N.L. Shepherd, J. Arango, B.K. Holzbauer-Schweitzer and R.C. Knox. June 2015. Restoring a Severely Disturbed Watershed via Ecological Engineering: The Role of Passive Treatment Technologies. 15th Annual Meeting of the American Ecological Engineering Society: Designing 21st Century Grasslands: Fire, Water, Conservation and Carbon, Stillwater, OK.
265. Shepherd, N.L., R.W. Nairn, J. LaBar, M. Dunn, C. Denholm, C. Neely and T. Danehy. June 2015. Biogeochemical Analysis of Spent Media from a Vertical Flow Treatment Pond. 32nd Annual Meeting of the American Society of Mining and Reclamation and 9th Annual Meeting of the Appalachian Regional Reforestation Initiative: Reclamation Opportunities for a Sustainable Future. Lexington, KY.
264. Page, B.J., N.L. Shepherd and R.W. Nairn. June 2015. Identifying and Resolving Passive Treatment System Hydrologic Operation and Maintenance Issues. 32nd Annual Meeting of the American Society of Mining and Reclamation and 9th Annual Meeting of the Appalachian Regional Reforestation Initiative: Reclamation Opportunities for a Sustainable Future. Lexington, KY (poster).
263. Oxenford, L.R. and R.W. Nairn. June 2015. Iron Oxide Accumulation Profiling Within the Initial Oxidation Unit of a Passive Treatment System. 32nd Annual Meeting of the American Society of Mining and Reclamation and 9th Annual Meeting of the Appalachian Regional Reforestation Initiative: Reclamation Opportunities for a Sustainable Future. Lexington, KY.
262. LaBar, J.A. and R.W. Nairn. June 2015. Evaluating the Impact of Na-SO_4^{-2} Dominated Ionic Strength on Trace Metal Removal in Vertical Flow Bioreactors. 32nd Annual Meeting of the American Society of Mining and Reclamation and 9th Annual Meeting of the Appalachian Regional Reforestation Initiative: Reclamation Opportunities for a Sustainable Future. Lexington, KY.
261. *Nairn, R.W., May 2015. Ecologically Engineered Passive Treatment to Address Metal-Contaminated Mine. 2015 Oklahoma Water Environment Association Annual Meeting, Oklahoma City, OK.
260. Nairn, R.W. May 2015. Ecologically Engineered Passive Treatment Effectively Addresses Metal-Contaminated Waters, World Water Congress XV, International Water Resources Association, Edinburgh, Scotland.
259. Arango, J. and R.W. Nairn. April 2015. Prediction of Secchi Disk Measurements in Grand Lake o' the Cherokees, Lake Hudson and Lake Texoma Using Landsat 7 Images, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK (poster)
258. Berg-Mattson, N., B. Holzbauer-Schweitzer and R.W. Nairn. April 2015. Urban Stormwater Runoff Quality and Quantity Abatement: A Paired Watershed Approach, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK (poster)
257. Oxenford, L.R. and R.W. Nairn. April 2015. Storm-Event Driven Metal Transport Dynamics Between the Initial Oxidation Cells of a Passive Treatment System, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK (poster)
256. Page, B.J., N.L. Shepherd and R.W. Nairn. April 2015. Impacts of Passive Treatment Systems on Water Quality in a Degraded Watershed, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK (poster)

255. *Nairn, R.W. April 2015. Restoring a Severely Disturbed Watershed via Ecological Engineering: The Role of Passive Treatment Technologies. OU Architecture Studio, Norman, OK.
254. *Nairn, R.W. April 2015. A Multidisciplinary Approach to Applied Water Science Stewardship and Security, West Virginia University, Morgantown, WV.
253. *Nairn, R.W. April 2015. A Vision and Strategy for Excellence in Water Stewardship and Security, West Virginia University, Morgantown, WV.
252. *Nairn, R.W. April 2015. Balancing Academic Careers and Public Engagement, Oklahoma Scholars Strategy Network, Norman, OK
251. Nairn, R.W., J.A. LaBar, L.R. Oxenford, B.J. Page, N.L. Shepherd, J. Arango and R.C. Knox. April 2015. Restoring a Severely Disturbed Watershed via Ecological Engineering: The Role of Passive Treatment Technologies, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK.
250. Nairn, R.W. and W. J. Mitsch. April 2015. Effective Phosphorus Retention in Wetlands: Three Case Studies from Across the United States, 24th Annual Conference, Oklahoma Clean Lakes and Watersheds Association, Stillwater, OK.

2014

249. *Nairn, R.W. November 2014. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Hitachi Inc., Norman, OK.
248. *Nairn, R.W. October 2014. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Japan Oil, Gas and Metals National Corporation, Norman, OK.
247. *Nairn, R.W. October 2014. Environmental Science at OU CEES. CEES 1112, Norman, OK.
246. *Nairn, R.W. and R.C. Knox. October 2014. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Geography Class, Norman, OK.
245. *Nairn, R.W. October 2014. The Rio Juckucha: Challenges and Opportunities in Water Restoration in the High Andes of Bolivia. Environmental Science Student Association, Norman, OK.
244. *Nairn, R.W. September 2014. Passive Treatment Progress Report: Let's Not Forget about Operable Unit 1 - Surface and Ground Water. 16th National Tar Creek Conference, Miami, OK.
243. Strosnider, W.H. and R.W. Nairn. June 2014. Engineered Floating Vegetation Mats for the Passive Treatment of Acid Mine Drainage. American Ecological Engineering Society, 14th National Meeting, Charleston, SC.
242. Peer, R., J. LaBar, B. Winfrey, R.W. Nairn, F.L. Lopez and W. Strosnider. June 2014. Passive Co-Treatment of Polymetallic Acid Mine Drainage at Cerro Rico de Potosí, Bolivia. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
241. Arango, J., K. Strevett and R.W. Nairn. June 2014. Impacts of Aeration on Hydraulic Characteristics of Passive Treatment Systems. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
240. *Nairn, R.W. June 2014. Implementation of Passive Treatment for Irreversibly Damaged Waters. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
239. Nairn, R.W. and D. Townsend. June 2014. Soil Metal Concentrations in Proposed Wetland Development Areas near the Tri-State Lead-Zinc Mining District. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
238. Zawrotny, S., J. Arango, L. Diede, A. McLeod, M. Salisbury, G. Rutelonis, R.C. Knox and R.W. Nairn. June 2014. Sediment Metal Concentrations in Selected Coves of Grand Lake. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
237. Bowen, J., C. Penn and R.W. Nairn. June 2014. Variability in Phosphorus Sorption by Acid Mine Drainage Residuals Under Flow-Through Conditions. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.

236. Shepherd, N., W. Matthews, R.W. Nairn, J. Barkstedt and N. Franssen. June 2014. Fishes of a Contaminated Stream After Operation of a Passive Treatment System. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
235. Arango, J., K. Strevett and R.W. Nairn. June 2014. Impacts of Aeration on Hydraulic Characteristics of Passive Treatment Systems. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
234. Furneaux, B. and R.W. Nairn. June 2014. Biodiversity Assessment of an Ecologically Engineered Treatment System for Metals-Contaminated Mine Drainage. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
233. Oxenford, L.R. and R.W. Nairn. June 2014. Storm Event-Driven Metal Transport Dynamics Between the Initial Oxidation Cells of a Passive Treatment System. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
232. Brumley, J. and R.W. Nairn. June 2014. Litter Decomposition Rates in Mine Water Wetlands and Ponds. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
231. Andrews, W.J., R.W. Nairn and C.J.G. Moreno. June 2014. Potential Recovery of Aluminum, Titanium, Lead, and Zinc from Fine Tailings in the Abandoned Picher Mining District of Oklahoma. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
230. Peer, R., J. LaBar, B. Winfrey, R.W. Nairn, F.L. Lopez and W. Strosnider. June 2014. Passive Co-Treatment of Polymetallic Acid Mine Drainage at Cerro Rico de Potosi, Bolivia. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
229. Cates, D. and R.W. Nairn. June 2014. Challenges in Passive Treatment Design: The Future at Tar Creek. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
228. Duncan, K.E., R.W. Nairn, K. Strevett and J.K. Choi. June 2014. Analysis of Microbial Communities in Vertical Flow Bioreactors at the Tar Creek Superfund Site. American Society of Mining and Reclamation, 31st National Meeting, Oklahoma City, OK.
227. *Nairn, R.W. January 2014. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. University of Kansas Geology Colloquium, Lawrence, KS.

2013

226. *Nairn, R.W. November 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Ohio University, Athens, OH
225. *Nairn, R.W. November 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Westminster College, New Wilmington, PA
224. *Nairn, R.W. November 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Thiel College, Greenville, PA
223. *Nairn, R.W. November 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Allegheny College, Meadville, PA
222. *Nairn, R.W. November 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Slippery Rock State University, Slippery Rock, PA
221. *Nairn, R.W. October 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Juniata College, Huntingdon, PA
220. *Nairn, R.W. October 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Pennsylvania State University, State College, PA
219. *Nairn, R.W. October 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. St. Francis University, Loretto, PA
218. *Nairn, R.W. October 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Finger Lakes Community College, Canandaigua, NY

217. *Nairn, R.W. October 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Pittsburg State University, Pittsburg, KS.
216. *Nairn, R.W., October 2013. Innovative Environmental Problem Solving. BIOL 3463 Water and Ecological Sustainability, University of Oklahoma, Norman, OK
215. *Nairn, R.W. October 2013. Being an Environmental Scientist in an Engineer's World. CEES 1112 Introduction to CEES, University of Oklahoma, Norman, OK
214. *Nairn, R.W. October 2013. A Brief History of the American Society of Mining and Reclamation. National Conference of the National Association of State Land Reclamationists. Hot Springs, AR.
213. *Nairn, R.W. and W.H.J. Strosnider. October 2013. Challenges and Opportunities in Mine Land and Water Restoration in the Developing World. National Conference of the National Association of State Land Reclamationists. Hot Springs, AR.
212. *Nairn, R.W. September 2013. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. National Conference of the National Association of State Land Reclamationists. Hot Springs, AR.
211. *Nairn, R.W. September 2013. Wetlands and Riparian Ecosystems. City of Norman Stormwater Workshop. Norman, OK
210. *Nairn, R.W. September 2013. 34 Years of Mine Water at Mayer Ranch. 15th National Conference on Tar Creek, Miami, OK
209. Llanos Lopez, F. W.H. Strosnider, R. Nairn. September 2013. Tratamiento de aguas contaminadas por actividad minera en la cuenca Kumurana, Potosí-Bolivia. Proceedings of the II Congreso Tecnico de la Industria Petrolera, Quimica y Minera, Cochabamba, Bolivia
208. Nairn, R.W. August 2013. Carbon Dioxide Impacts Passive Treatment System Effectiveness and Carbon Footprint. International Mine Water Association, Golden, CO.
207. Peer, R.A.M., W.H.J. Strosnider, B.K. Winfrey and R.W. Nairn. August 2013. Passive Co-Treatment of Acid Mine Drainage and Municipal Wastewater: Removal of Less Commonly Addressed Metals at Cerro Rico de Potosi, Bolivia. International Mine Water Association, Golden, CO.
206. Strosnider, W.H.J., F.S. Llanos Lopez, J.A. LaBar, K.J. Palmer, R.A.M. Peer and R.W. Nairn. August 2013. Cerro Rico de Potosi, Bolivia: Broader Impacts from Unabated Acid Mine Drainage. International Mine Water Association, Golden, CO.
205. Nairn, R.W. August 2013. Successful Passive Treatment of Iron-Rich Lead-Zinc Mine Waters and an Effective Method to Address Nuisance Constituents. International Mine Water Association, Golden, CO.
204. Nairn, R.W. and K.A. Strevett. June 2013. Off-the-Grid Aeration to Address Nuisance Constituent Production from Specific Passive Treatment System Process Units. Proceedings of the 30th National Conference of the American Society of Mining and Reclamation, Laramie, WY.
203. Oxenford, L.R. and R.W. Nairn. June 2013. Seasonality of Iron Removal Within the Initial Oxidation Cell of a Passive Treatment System. Proceedings of the 30th National Conference of the American Society of Mining and Reclamation, Laramie, WY.
202. Zawrotny, S.C., J. Arango-Calderon, L. Diede, A. McLeod, G. Rutelonis, M. Salisbury, M.P. Beltran Zuniga, G.A. Busch, K.R. Douglas, E.F. Garifalos, L. Liu, N. Nabavizadeh, M. Rice, D.W. Stevens, J.A. LaBar, D.E. Townsend III, R.C. Knox and R.W. Nairn. June 2013. Chemical Constituents in Water and Sediment from Grand Lake O' the Cherokees, Oklahoma, Downstream from the Tri-State Lead-Zinc Mining District. Proceedings of the 30th National Conference of the American Society of Mining and Reclamation, Laramie, WY.

201. LaBar, J.A. and R.W. Nairn. June 2013. Determination of Dominant Trace Metal Sequestration Processes in Two Vertical Flow Bioreactors Using Modified Tessier Extractions. Proceedings of the 30th National Conference of the American Society of Mining and Reclamation, Laramie, WY.
200. *Nairn, R.W., T. Cooper and N. Robinson. June 2013. Rio Juckucha Kumurana Valley Water Project: A Working Partnership in the High Andes. Norman Noon Rotary Club, Norman, OK
199. *Nairn, R.W. May 2013. Solving the Global Water Crisis: The Role of University Research. Garver Engineers Annual Retreat, Norman, OK
198. *Nairn, R.W. May 2013. Solving the Global Water Crisis: The Role of University Research. American Public Works Association – Oklahoma and Oklahoma Water Environment Association Annual Meeting, Midwest City, OK.
197. *Nairn, R.W., T. Cooper and N. Robinson. April 2013. Rio Juckucha Kumurana Valley Water Project: A Working Partnership in the High Andes. Space Center Rotary Club, Houston, TX.

2012

196. *Nairn, R.W. November 2012. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. CH2M-Hill, Natural Systems Team, Live Meeting Web Conference.
195. *Nairn, R.W., K.A. Strevett, J.A. LaBar, W.H. Strosnider, F.S. Llanos Lopez and L.R. Oxenford. October 2012. Ecological Engineering to Restore Drastically Disturbed Watersheds: From Superfund to 16,000 Feet. 4th International EcoSummit: Ecological Sustainability Restoring the Planet's Ecosystem Services, Columbus, OH.
194. Long, J., R.W. Nairn, K.A. Strevett, D.E. Townsend, J. Luedecke and M. Grigsby. September 2012. Toward Sustainability in Passive Treatment: Using Stakeholder Partnerships to Ensure Sound Science. 14th National Conference on Tar Creek, Miami, OK.
193. Kent, T., R.W. Nairn, K.A. Strevett and J.A. LaBar. August 2012. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. Tribal Lands Forum, Institute of Tribal Environmental Professionals and U.S. EPA Office of Solid Waste and Emergency Response, Coos Bay, OR.
192. Nairn, R.W., K.A. Strevett and J.A. LaBar. June 2012. Reversing the Irreversible: Passive Treatment of Mine Waters in a Drastically Disturbed Watershed. 12th Annual American Ecological Engineering Society Meeting, Syracuse, NY.
191. Oxenford, L.R. and R.W. Nairn. Event-Driven Metal Transport Dynamics in the Initial Oxidation Cells of a Passive Treatment System. June 2012. Proceedings of the 29th National Conference of the American Society of Mining and Reclamation, Tupelo, MS, pp. 424.
190. Nairn, R.W., K.A. Strevett, D.E. Townsend, J. Luedecke, J. Long and M. Grigsby. June 2012. Toward Sustainability in Passive Treatment: Using Stakeholder Partnerships to Ensure Sound Science. Proceedings of the 29th National Conference of the American Society of Mining and Reclamation, Tupelo, MS, pp. 390.
189. Nairn, R.W., K.A. Strevett and B.M. Callies. June 2012. Re-Aerating Off the Grid: Improving Passive Treatment Success with Solar and Wind Energies. Proceedings of the 29th National Conference of the American Society of Mining and Reclamation, Tupelo, MS, pp. 389.
188. Strosnider, W.H.J., J. Alvarez, F.S. Llanos Lopez, C. Breazile, S. Crook, P. Monje, T. Cooper and R.W. Nairn. June 2012. Design and Construction Challenges for Limestone-Based Passive

- Treatment Systems in the Rural Andres, Potosi, Bolivia. Proceedings of the 29th National Conference of the American Society of Mining and Reclamation, Tupelo, MS, pp. 497.
187. Strosnider, W.H.J., B.K. Winfrey and R.W. Nairn. June 2012. Expanding the Scope of Passive Treatment: Co-Treatment of Acid Mine Drainage with Municipal Wastewater. Proceedings of the 29th National Conference of the American Society of Mining and Reclamation, Tupelo, MS, pp. 498.
186. *Nairn, R.W. March 2012. Environmental Restoration to Address Risk at Historic Mining Sites, OU Zoology 2011, Norman, OK.
185. Nairn, R.W. January 2012. Water and Watersheds (Or What It's Like to be an Environmental Scientist). Native American Science Club, University of Oklahoma, Norman, OK.
184. Nairn, R.W. and K.A. Strevett. January 2012. Evaluating Wastewater Reuse for Livestock Watering. Oklahoma Water Resources Research Institute, Stillwater, OK.

2011

183. *Nairn, R.W. October 2011. Passive Treatment Opportunities in a Drastically Disturbed Watershed: *Reversing the Irreversible?* Governor's Water Conference, Norman, OK.
182. *Nairn, R.W. September 2011. Can We Reverse the Irreversible? Ecologically-Engineered Passive Treatment of Mine Waters at the Tar Creek Superfund Site. University of Central Oklahoma, Edmond, OK.
181. *Nairn, R.W. September 2011. Passive Treatment Opportunities in a Drastically Disturbed Watershed: *Reversing the Irreversible?* 13th National Conference on Tar Creek, Miami, OK.
180. *Nairn, R.W. September 2011. Influence of Wetland and Riparian Zones on Water Quality. City of Norman Urban Stormwater Workshop, Norman, OK.
179. Llanos Lopez, F., W.H. Strosnider and R.W. Nairn. September 2011. Passive treatment implementation in the Kumurana-Juckucha watershed, Potosi, Bolivia. Second International WaTER Conference, Norman, OK.
178. Strosnider, W.H., F.S. Llanos Lopez, and R.W. Nairn. September 2011. Managing a project from half a world away: A case study of the rehabilitation of Rio Juckucha, Bolivia. Second International WaTER Conference, Norman, OK.
177. Rogers, R., S. Alegre, D. Carroll, T. Montgomery, K. Raus, S. Bush, C. Breazile, A. Neptune, K. Palmer, J.Z. Bandstra, W.H. Strosnider, F. Llanos Lopez, J. Alvarez and R.W. Nairn. September 2011. Treating severely contaminated mine waters at 16,000 feet: a project based service learning opportunity in the Bolivian Andes. Second International WaTER Conference, Norman, OK.
176. Nairn, R.W. September 2011. Ecological Engineering for Sustainable Environmental Remediation and Restoration. OU Sustainability Seminar Series, Norman, OK.
175. *Nairn, R.W. August 2011. *Reversing the Irreversible?* Passive Treatment of Mine Waters at the Tar Creek Superfund Site. Environmental Microbiology and Biotechnology Summer Course, OK-EPSCoR, OU, Norman, OK.
174. *Nairn, R.W. May 2011. Tratamiento Pasivo de Aguas Mineras Contaminadas: Un Estudio Trabajado en Estados Unidos de Norte America. Invited Seminar, La Universidad Autonoma "Tomas Frias", Potosi, Bolivia.
173. *Nairn, R.W. May 2011. Tratamiento Pasivo de Aguas Mineras Contaminadas: Un Estudio Trabajado en Estados Unidos de Norte America. Invited Seminar, Secretario de la Madre Tierra, Potosi, Bolivia.

172. Strosnider, W.H., Winfrey, B.K., Nairn, R.W. May 2011. Passive co-treatment of municipal wastewater and acid mine drainage: A promising new ecological engineering approach, 11th Annual Meeting of the American Ecological Engineering Society, Asheville, NC.
171. Nairn, R.W. April 2011. Passive Treatment of Mine Waters at the Tar Creek Superfund Site. U.S. Environmental Protection Agency, Region 6, Dallas, TX.
170. Nairn, R.W. April 2011. Reversing the Irreversible? Passive Treatment of Mine Waters in the Tar Creek Watershed. 20th Annual Oklahoma Clean Lakes and Watersheds Conference, Edmond, OK.
169. Nairn, R.W., K.A. Strevett, J.A. LaBar, T.H. Beisel, R.C. Thomas and J.S. Bays. March 2011. Successful Full-Scale Passive Treatment in the Tri-State Lead-Zinc Mining District, 2011 Society for Mining Metallurgy and Exploration and Colorado Mining Association 113th National Western Mining Conference, Denver, CO.
168. Thomas, R., R. Nairn, J. Bays, T. Beisel, J. LaBar and K. Strevett. March 2011. Design Considerations, Construction Challenges, and Implementation of the Mayer Ranch Passive Treatment System in the Tri-State Mining District, 2011 Society for Mining Metallurgy and Exploration and Colorado Mining Association 113th National Western Mining Conference, Denver, CO.
167. *Nairn, R.W. March 2011. Environmental Restoration to Address Risk at Historic Mining Sites, OU Zoology 2011, Norman, OK.

2010

166. *Nairn, R.W. November 2010. Remediation and restoration in the Tri-State Mining District: Passive treatment of iron-rich lead-zinc mine waters through ecological engineering. Invited Seminar, Department of Civil, Architectural and Environmental Engineering, Missouri University of Science and Technology, Rolla, MO.
165. Bays, J., B.T. Thomas, T. Beisel and R. Nairn. October 2010. Remediation of contaminated groundwater by passive treatment: Concept to construction at Mayer Ranch, OK. 12th International Water Association International Conference on Wetland Systems for Pollution Control, San Servolo Island, Venice, Italy.
164. *Nairn, R.W. October 2010. Environmental sustainability efforts at the University of Oklahoma. Hokkaido University Sustainability Weeks 2010, Hokkaido University, Sapporo, Japan.
163. *Nairn, R.W. October 2010. Water education for health, development and peace. Hokkaido University Sustainability Weeks 2010, Hokkaido University, Sapporo, Japan.
162. Dutnell, R. R. Kolar and R.W. Nairn. October 2010. Preliminary findings of a fluvial geomorphic and sediment transport study of the Little River upstream of Lake Thunderbird using an Acoustic Doppler Current Profiler, 2010 Governor's Water Conference and Oklahoma Water Research Symposium, Norman, OK (poster).
161. Oxenford, L. and R.W. Nairn. October 2010. Seasonal iron removal performance within the initial oxidative cells of a passive treatment system, 2010 Governor's Water Conference and Oklahoma Water Research Symposium, Norman, OK (poster).
160. Nairn, R.W., J.A. LaBar and K.A. Strevett. October 2010. Evaluation of an Ecologically-Engineered Passive Treatment System for Ferruginous Lead-Zinc Mine Waters, 2010 Governor's Water Conference and Oklahoma Water Research Symposium, Norman, OK (poster).
159. Strevett, K.A. and R. W. Nairn. October 2010. Evaluation of an Ecologically-Engineered Passive Treatment System for Ferruginous Lead-Zinc Mine Waters, 2010 Governor's Water Conference and Oklahoma Water Research Symposium, Norman, OK.

158. *Nairn, R.W. September 2010. Remediation and restoration in drastically disturbed watersheds through ecological engineering, Ecology and Evolutionary Biology Program Seminar Series, Norman, OK.
157. *Nairn, R.W. September 2010. Remediation and restoration in the Tri-State Mining District: Passive treatment of iron-rich lead-zinc mine waters through ecological engineering, Invited Seminar, Williamson Family Colloquium Series, Department of Geological Sciences, University of Missouri, Columbia, MO.
156. *Nairn, R., J. LaBar and K. Strevett. September 2010. Passive Treatment of Iron-Rich Lead-Zinc Mine Waters: Successful Results and Promising Possibilities, 12th National Conference on Tar Creek, Miami, OK.
155. Andrews, W.J. and R.W. Nairn. April 2010. Investigation of spatial and time trends in bioavailability of metals and cycling of metals in bioavailability of metals and cycling of metals in upland, wetland, and aquatic environments in upland, wetland, and aquatic environments in the Tri-State mining district, First Annual Grand Lake Watershed Conference, Grand River Dam Authority, Langley, OK.
154. LaBar, J.A., R.W. Nairn, K.A. Strevett, W.H. Strosnider, D. Morris, C.A. Neely, A.E. Garrido and K. Kauk. April 2010. Stream Water Quality Improvements after Installation of a Passive Treatment System, First Annual Grand Lake Watershed Conference, Grand River Dam Authority, Langley, OK.
153. *Nairn, R.W., J.A. LaBar, K.A. Strevett, W.J. Strosnider, C.A. Neely, D. Morris, A.E. Garrido and L. Oxenford. April 2010. Passively Addressing Iron-Rich Lead-Zinc Mine Waters through Ecological Engineering: Full-Scale Mine Water Treatment in the Tri-State District, First Annual Grand Lake Watershed Conference, Grand River Dam Authority, Langley, OK.
152. *Nairn, R. J. LaBar, K. Strevett, W. Strosnider, L. Oxenford, T. Beisel, R. Thomas, and J. Bays. April 2010. Passively Addressing Ferruginous Lead-Zinc Mine Waters through Hydro-Biogeochemical and Ecological Engineering. Geological Society of America North Central-South Central Joint Meeting, Branson, MO.
151. *Nairn, R.W. March 2010. Environmental Restoration to Address Risk at Historic Mining Sites, OU Zoology 2011, Norman, OK.

2009

150. *Nairn, R.W. November 2009. Challenges in Design and Construction of a Large Multi-Cell Passive Treatment System for Ferruginous Lead-Zinc Mine Waters, OU Geography 6240, Norman, OK.
149. *Nairn, R.W. November 2009. Addressing Mining-Related Environmental Contamination Problems Through Ecological Engineering, OU Botany 3453, Norman, OK.
148. *Nairn, R.W. November 2009. Listen to Your Mother! Addressing Mining-Related Environmental Contamination Problems Through Ecological Engineering, Science Café Norman, OK.
147. *Nairn, R.W. November 2009. Evolutionary Biology and Ecology in Human-Made Ecosystems, OU Darwinathon, Norman, OK.
146. Nairn, K.A., K. Strosnider and R.W. Nairn. November 2009. Jefferson Elementary School Water Conservation and Outdoor Classroom Project: A Model for Water Conservation Education. Oklahoma Governor's Water Conference, Midwest City, OK (poster).
145. Llanos López, F.S., R.W. Nairn and W. H. Strosnider. October 2009. Mining in Potosí, Bolivia and the Struggle to Conserve or Reclaim Crucial Water Resources in High Altitude Alpine Desert. First International WaTER Conference, Norman, OK.

144. Strosnider, W.H. and R.W. Nairn. October 2009. The Project for the Rehabilitation of Rio Juckucha, Bolivia: Unique Challenges, Coalition Formation and the Road Ahead. First International WaTER Conference, Norman, OK.
143. Santamaria, B., M.R. Apaza Q, W.H. Strosnider and R.W. Nairn. October 2009. Preliminary Evaluation of Locally Available Organic Substrates for Vertical Flow Passive Treatment Cells in Potosi, Bolivia. First International WaTER Conference, Norman, OK.
142. Garrido, A.E., J. Condori, W.H. Strosnider and R.W. Nairn. October 2009. Acid Mine Drainage Impacts on Irrigation Water Resources, Agricultural Soils, and Potatoes in Potosi, Bolivia. First International WaTER Conference, Norman, OK.
141. Oxenford, L. and R.W. Nairn. October 2009. Investigation of Iron Photoreduction in AMD Discharges Near Potosi, Bolivia. First International WaTER Conference, Norman, OK.
140. *Nairn, R., T. Beisel, R. Thomas, J. LaBar, K. Strevett, D. Fuller, W. Strosnider, W. Andrews, J. Bays, and R. Knox. September 2009. Challenges in Design and Construction of a Large Multi-Cell Passive Treatment System for Ferruginous Lead-Zinc Mine Waters, 11th National Conference on Tar Creek, Miami, OK.
139. *Nairn, R.W. May 2009. Design, Construction and Evaluation of a Large Multi-Cell Passive Treatment System for Ferruginous Lead-Zinc Mine Waters, Eastern Shawnee Tribe Wetlands Conference, Quapaw, OK.
138. *Nairn, R.W. May 2009. Challenges in Design, Construction and Evaluation of a Large Multi-Cell Passive Treatment System for Ferruginous Lead-Zinc Mine Waters. Air and Waste Management Association Monthly Meeting, Oklahoma City, OK.
137. *Nairn, R.W. March 2009. Environmental Restoration to Address Risk at Historic Mining Sites, OU Zoology 2011, Norman, OK.

2008

136. Strosnider, W.H. and R.W. Nairn. October 2008. Reclaiming Irrigation Water in the High Desert of Potosi, Bolivia: Proposal for the Rehabilitation of Rio Juckucha, Engineers Without Borders Meeting, Oklahoma City, OK (poster).
135. *Nairn, R.W. October 2008. Ecological Engineering to Improve Water Quality. OU CEES 1112, Norman, OK.
134. *Nairn, R.W., J.A. LaBar and G.A. Canty. September 2008. Water Quality Changes in a Combined Alkaline Injection Technology-Reducing and Alkalinity Producing System. (AIT-RAPS). Office of Surface Mining Mid-Continent Region Technology Transfer Acid Mine Drainage Workshop, Ft. Smith, AR.
133. *LaBar, J.A. R.W. Nairn and G.A. Canty. September 2008. Generation of 400-500 mg/L Alkalinity in a Vertical Anoxic Limestone Drain. Office of Surface Mining Mid-Continent Region Technology Transfer Acid Mine Drainage Workshop, Ft. Smith, AR.
132. *Nairn, R.W. September 2008. Passive Treatment of Mine Drainage in the Tar Creek Superfund Site. 10th National Conference on Tar Creek, Miami, OK.
131. *Nairn, R., K. Strevett, A. Sutter, J. LaBar, B. Santamaria, J. Clifton, D. Lutes, W. Strosnider, A. Brewer, J. Brumley and K. Kauk. September 2008. Evaluating Environmental Impacts of Abandoned Mine Water Discharges. 10th National Conference on Tar Creek, Miami, OK.
130. Strosnider, W., R. Nairn and B. Santamaria. September 2008. A Legacy of Nearly 500 years of Mining in Potosi, Bolivia. 10th National Conference on Tar Creek, Miami, OK.
129. Garrido, A. R. Nairn and W. Strosnider. September 2008. Sampling and Analyses of Agricultural Soils in Potosi, Bolivia. 10th National Conference on Tar Creek, Miami, OK (poster).
128. Brewer, A. and R. Nairn. September 2008. Mining Impacts on Traditionally Used Plants in Ottawa County, OK. 10th National Conference on Tar Creek, Miami, OK (poster).

127. Lutes, D. and R. Nairn. September 2008. Biototoxicity of Mine Waters at the Tar Creek Superfund Site. 10th National Conference on Tar Creek, Miami, OK (poster).
126. Brumley, J. and R. Nairn. September 2008. Metrics of Ecological Function in Disturbed and Treatment Wetlands. 10th National Conference on Tar Creek, Miami, OK (poster).
125. *Nairn, R.W. March 2008. Environmental Restoration to Address Risk at Historic Mining Sites. OU Zoology 2011, Norman, OK.
124. *Nairn, R.W. February 2008. Designing with Mother Nature: Ecological Engineering to Treat Polluted Waters. OU EcoMunch, Norman, OK.

2007

123. Behum, P.T., B. Hicks, J.A. LaBar and R.W. Nairn. October 2007. Remediation of Artesian Mine Pool Discharge in Oklahoma: The LeBosquet Passive Treatment System. 29th National Association of Abandoned Mine Lands Programs Conference, Bloomington, IN.
122. *Nairn, R.W. October 2007. Ecological Engineering and Ecosystem Restoration. 16th Annual Meeting of the Environmental Federation of Oklahoma, Oklahoma City, OK.
121. *Nairn, R.W. September 2007. Kidneys, Supermarkets, Thermostats and Wetlands. Central Oklahoma Master Naturalists, Norman, OK.
120. *Nairn, R.W. September 2007. Applying Ecology: Ecological Engineering Science. Ecology and Evolutionary Biology Program Seminar Series, Norman, OK.
119. Nairn, R.W. K.A. Strevett, J.A. LaBar, D. Ertugrul, K. Walker, B. Winfrey, D. Hensley, M. Roberts, D. Lutes, T. Traw, P. Baczynski and B. Johnson. June 2007. Watershed-scale environmental monitoring to examine remediation and restoration success: water quality and hydrology. Annual Meeting of the American Society of Mining and Reclamation, Gillette, WY (poster).
118. Walker, K., K.A. Strevett and R. Nairn. May 2007. Stream restoration design of a tributary in the Tar Creek watershed, Ottawa County, OK. 2007 American Ecological Engineering Society Annual Meeting, Manhattan, KS (poster).
117. Strevett, K.A., D. Ertugrul, and R. Nairn. May 2007. Investigation of mine pool interactions with surface relief formations during land reclamation. 2007 American Ecological Engineering Society Annual Meeting, Manhattan, KS (poster).
116. Walker, K., K.A. Strevett and R. Nairn. May 2007. Stream restoration design of a tributary in the Tar Creek watershed, Ottawa County, OK. 9th National Conference on Tar Creek, Miami, OK (poster).
115. Ertugrul, D., K.A. Strevett and R. Nairn. May 2007. Investigation of mine pool interactions with surface relief formations during land reclamation. 9th National Conference on Tar Creek, Miami, OK (poster).
114. Nairn, R.W., K.A. Strevett, M. Zaman and R.C. Knox. May 2007. Mining reclamation research in the Center for Restoration of Ecosystems and Watersheds at the University of Oklahoma. 9th National Conference on Tar Creek, Miami, OK (poster).
113. Nairn, R.W., K.A. Strevett, R.C. Knox and T. Beisel. May 2007. Passive treatment of net alkaline ferruginous lead-zinc mine water: Design and construction. 9th National Conference on Tar Creek, Miami, OK (poster).
112. *Nairn, R.W., K. Strevett, J. LaBar, D. Ertugrul, K. Walker, B. Winfrey, D. Hensley, M. Roberts, D. Lutes, T. Traw, P. Baczynski and B. Johnson. May 2007. Watershed-Scale Environmental Monitoring to Examine Remediation and Restoration Success: Water Quality and Hydrology, 9th National Conference on Tar Creek, Miami, OK.
111. Kellogg, C.H. and R.W. Nairn. May 2007. Ecosystem Function and Plant Community Development in Metal-Contaminated Depressional Wetlands, 9th National Conference on Tar Creek, Miami, OK.

110. Andrews, W.J. and R.W. Nairn. May 2007. Assessment of Time Trends in Bioavailable Metals in the Tri-State Mining District Through Analyses of Tree Rings and Soils. 9th National Conference on Tar Creek, Miami, OK.
109. Hensley, D.M. and R.W. Nairn. May 2007. Mussels as passive filters in water treatment. 9th National Conference on Tar Creek, Miami, OK (poster).

2006

108. *Nairn, R.W. October 2006. Ecological Engineering to Restore Disturbed Watersheds: Attacking Our Most Challenging Superfund Site. University of Oklahoma, College of Engineering, Interdisciplinary Seminar Series, Norman, OK.
107. *Nairn, R.W. September 2006. Kidneys, Supermarkets, Thermostats and Wetlands, Oklahoma Master Naturalists, Norman, OK.
106. *Nairn, R.W. May 2006. Update on Chat-Asphalt, Passive Treatment and Remediation Monitoring Projects. National Conference on Tar Creek VIII, Miami, OK.
105. Andrews, W.J. and R.W. Nairn. March 2006. Preliminary evaluation of tree core metal analyses to examine historical bioavailability. Proceedings of the 7th International Conference on Acid Rock Drainage, St. Louis, MO.

2005

104. Wasiuddin, N., W. Hamid, M. Zaman, R. Nairn and T. Landers. June 2005. Using raw chat in hot mix asphalt for pavement applications. In: R. Barnhisel (ed.) Proceedings of the American Society of Mining and Reclamation 22nd Annual National Conference, Breckinridge, CO, pp. 1231.
103. *Nairn, R.W. May 2005. Current Environmental Remediation and Restoration Research in the Tri-State Mining District, Society of American Military Engineers Meeting, Oklahoma Chapter, Midwest City, OK.
102. Nairn, R.W. May 2005. Passive Treatment of Abandoned Mine Drainage: Toward Watershed Restoration in Mining-Disturbed Landscapes, American Ecological Engineering Society, Annual Meeting, Columbus, OH.
101. *Nairn, R.W. April 2005. Potential for Passive Treatment Technologies to Improve Water Quality in the Tri-State Mining District, Tri-State Mining District Forum, Joplin, MO.
100. Nairn, R.W. K.A. Strevett, M.M. Zaman, R.C. Knox and T.L. Landers. April 2005. A Summary of Current OU Remediation and Restoration Research with Application to the Tri-State Mining District, Tri-State Mining District Forum, Joplin, MO (poster).
99. Labar, J. and R.W. Nairn. April 2005. Fate and Transport of Mine Waste Contaminants: A Laboratory Simulation of Subaqueous Disposal, Tri-State Mining District Forum, Joplin, MO (poster).
98. White, R.L. and R.W. Nairn. April 2005. Ecological Restoration of Abandoned Tailings Impoundments of the Tri-State Mining District-A Preliminary Outline, Tri-State Mining District Forum, Joplin, MO (poster).
97. Viswanathan, S., K.A. Strevett and R.W. Nairn. April 2005. Microbial Ecosystems in a Volunteer Wetland and in an Experimental Passive Treatment Mesocosm: A Comparative Study, Tri-State Mining District Forum, Joplin, MO (poster).
96. Gause, C. R.W. Nairn and M.M. Zaman. April 2005. Environmental analyses of hot mix asphalt made with mining waste materials, Tri-State Mining District Forum, Joplin, MO (poster).
95. Zaman, M.M., R.W. Nairn, R.C. Knox and T.L. Landers. April 2005. A Laboratory Study to Optimize the Use of Raw Chat in Hot Mix Asphalt for Pavement Application: Mechanical Aspects Tri-State Mining District Forum, Joplin, MO (poster).

2004

94. *Nairn, R.W. and R.L. White. December 2004. Using Wetlands for Treatment of Swine Waste: An Overview, Region 6 State/Tribal/EPA NPDES Concentrated Animal Feeding Operation Inspector Training Workshop, Oklahoma City, OK.
93. *Nairn, R.W. November 2004. Potential Applications of Passive Treatment System Technologies at the Tar Creek Superfund Site, Oklahoma Water 2004, Stillwater, OK.
92. DuBois, C.R. and R.W. Nairn. July 2004. A Comparative Evaluation of Wetland Assessment Methods for Use in Oklahoma, Annual Meeting, Society of Wetland Scientists, Seattle, WA.
91. *Nairn, R.W. May 2004. Water Quality Related Projects at the Tar Creek Superfund Site, National Conference on Tar Creek VI, Miami, OK.
90. Nairn, R.W., C.M. Porter, and G.A. Canty. April 2004. Water quality changes in a combined alkaline injection technology-reducing and alkalinity producing system (AIT-RAPS). *In*: R. Barnhisel (ed.), Proceedings of a Joint Conference of the 21st Annual National Meetings of the American Society of Mining and Reclamation and 25th West Virginia Surface Mine Drainage Task Force Symposium, Morgantown, WV.
89. Nairn, R.W. and N.J. Iverson. April 2004. Mine drainage discharge quality and hydrology of an abandoned hard-rock mining watershed. *In*: R. Barnhisel (ed.), Proceedings of a Joint Conference of the 21st Annual National Meetings of the American Society of Mining and Reclamation and 25th West Virginia Surface Mine Drainage Task Force Symposium, Morgantown, WV.
88. Porter, C.M. and R.W. Nairn. April 2004. Impacts of remediated acid mine drainage on biological systems within a successive alkalinity producing wetland treatment system. *In*: R. Barnhisel (ed.), Proceedings of a Joint Conference of the 21st Annual National Meetings of the American Society of Mining and Reclamation and 25th West Virginia Surface Mine Drainage Task Force Symposium, Morgantown, WV.
87. Porter, C.M. and R.W. Nairn. April 2004. Acid mine drainage and coal combustion products affect *Corbicula fluminea* and *Gambusia affinis*. *In*: R. Barnhisel (ed.), Proceedings of a Joint Conference of the 21st Annual National Meetings of the American Society of Mining and Reclamation and 25th West Virginia Surface Mine Drainage Task Force Symposium, Morgantown, WV.
86. *Nairn, R.W. March 2004. Land and water restoration through ecological engineering at the Tar Creek Superfund Site, University of Oklahoma, Civil Engineering and Environmental Science Seminar, Norman, OK.
85. *Nairn, R.W. March 2004. Wetlands functions and values: the role of treatment wetlands in water quality improvement, Sierra Club, Oklahoma City, OK.
84. *Nairn, R.W. March 2004. Nutrient impacts to surface and ground waters in the drier portions of the Lower Mississippi River Basin, Ecological Restoration of the Mississippi-Ohio-Missouri River Basin: Identifying Research Needs, Louisiana State University, Baton Rouge, LA.

2003

83. *Nairn, R.W. November 2003. Mines, marshes and microbes: Biogeochemical and ecological mechanisms for passive treatment of metal contaminated waters, The Ohio State University, Environmental Science Graduate Program Invited Seminar Series, Columbus, OH.
82. *Nairn, R.W. November 2003. Treatment of metal contaminated waters using passive biogeochemical and ecological mechanisms, Oklahoma State University, Plant and Soil Sciences Invited Seminar Series, Stillwater, OK.
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