**­Charles Andrew Cole**

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Department of Landscape Architecture

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**Education**

Ph.D. Zoology, Southern Illinois University, 1983-1988, Carbondale, Illinois. Dr. E. A. LeFebvre, Advisor. Dissertation: *Wetland ecosystem development on a reclaimed surface coal mine in southern Illinois*.

M.S. Wildlife Management, 1981-1983, West Virginia University, Morgantown, West Virginia. Dr. R. L. Smith, Advisor. Thesis: *Validation of seven habitat models based on the USFWS Habitat Evaluation Procedures*.

B.S. Wildlife Biology, 1978-1981, University of Massachusetts, Amherst, Massachusetts.

Wildlife Biology, 1977, North Carolina State University, Raleigh, North Carolina

**Professional Employment**

2017- Director, E+D: Ecology & Design – a Center in Development

2015-2016 Administrative Fellow - PSU Graduate School

2014- Associate Professor of Landscape Architecture and Ecology

2010-14, 16fAssociate Professor of Landscape Architecture and Ecology and LArch Graduate Program Coordinator, Penn State University

2008-2010 Assistant Professor of Landscape Architecture and Ecology and LArch Graduate Program Coordinator, Penn State University.

2000-2008 Assistant Professor of Landscape Architecture and Ecology and Associate Director, Center for Watershed Stewardship, Penn State University. *[Tenure track 1/1/2006]*

1996-2000 Affiliate Assistant Professor, Department of Landscape Architecture & Research Associate, School of Forest Resources, Penn State University

1993-1996 Research Associate, School of Forest Resources, Penn State University

1991-1993 Assistant Professor, Nova University, Dania, Florida

1989-1991 Visiting Assistant Professor, Department of Parks, Recreation, and Tourism Management, North Carolina State University

1989 Instructor, Hardbarger Junior College, Raleigh, North Carolina

1988-1989 Post-Doctoral Researcher, Institute of Ecology, University of Georgia. [Interim Natural Resources Manager, CAHA – summer 1989]

1988 Instructor, Department of Science, Rend Lake College, Ina, IL

**Teaching Experience**

Affiliations

2015- Graduate faculty, Department of Architecture, Penn State University

2009- Graduate faculty, Human Dimensions of Natural Resources and the Environment (HDNRE), Penn State University

1997- Graduate faculty, Ecology, Penn State University

1996- Graduate faculty, Department of Landscape Architecture, Penn State University

Graduate Classes Taught

HDNRE 596 – Independent study Penn State 2015 (Su)

ARCH 596b – Advanced Research Methods Penn State 2015

LArch 550 – MLA capstone project coordinator Penn State 2014

LArch 550 – MLA capstone project Penn State 2012, 13

LArch 596 (Special topic – West Virginia Ecotourism) Penn State 2013

LArch 596 (Special topic – Bioregenerative systems) Penn State 2012

LArch 596 (Special topic – wetland plant ID) Penn State 2011

Ecology 597 (Flora Central Appalachians - Fall) Penn State 2006, 08, 10

LArch 590 - Colloquium Penn State 2010, 15, 17

LArch 597 (Special topic - Wetland Ecology) Penn State 2008

LArch 414/424/540 (River ecology & dam removal) Penn State 2007

Ecology 597d (Flora Central Appalachians-Spring) Penn State 2007

LArch 597 (Special topic - Wetland Plant ID) Penn State 2005

Watershed Seminar Penn State 2000-2008

Watershed Practicum Penn State 2000-2008

LArch 597 (Special topic - Landscape Ecology) Penn State 1997

Wetland Ecology Nova Univ. 1992

Research Methods (Parks, Recreation, Tourism Mgt.) NCSU 1990-1991

Undergraduate Classes Taught

LArch 497a – Musser Gap to Valleylands assessment Penn State 2018

LArch 424/497/ (510) – Ecological Design Penn State 2015, 18

LArch 272 – Field trip: Ecology of the Ridge & Valley Penn State 2013, 18

LArch 424 – Ecology and field ID of central App. flora Penn State 2012

LArch 496 – Stream restoration Penn State 2012

LArch 414 – The Marcellus Shale studio Penn State 2011

LArch 424 – The Marcellus Shale Penn State 2011

LArch 424 - Watershed Stewardship & Planning Penn State 2009

LArch 312/322 3rd year studio (co-taught) Penn State 2009

LArch 424/510 - Restoration Ecology Penn State 2005, 2008-2012, 2014

LArch 127/241/145 – Ecology and Plants I Penn State 2004-

Ecological Restoration & Design Penn State 2004

Wildlife & Fisheries Conservation Penn State 1998-2000

Mammalogy Penn State 2000

Ecology Nova Univ. 1991

Environmental Studies HJC, Nova 1989, 1991-93

Outdoor Recreation Management NCSU 1990

Introductory Zoology RLC 1988

Introductory Biology (lab) SIUC 1988

Wildlife Techniques (lab) SIUC 1983

Continuing Education Classes Taught

Wetland Ecology - PSU Governor's School Penn State 2007, 2008

Principles of Wetland Design Penn State 1996-98, 2001

Wetland Ecology, Identification, Penn State 1999

 Assessment and Protection

Wildlife Ecology - PSU Governor's School Penn State 1995

Undergraduate Research Projects Supervised: (\* co-advised)

Emerson, R. 2009 Restoring Spring Creek Park - LArch Honor's project.

Reinhardt, C. 1996 Analysis of historic wetland seed banks using Cs137.

Babb, J. 1996 Water quality in selected wetlands of Pennsylvania.

Shaw, J. \* 1994 Soil amendments and wetland plant growth.

Fearer, T. \* 1993 Creation of an amphibian data base for the PA GAP project.

Graduate students supervised (year finished) (\* co-advisor): [a MLA Capstone project]

Gould, T. \* Ecology Ph.D. [Co-advisor K. Tamminga]

Rothman, S. 2020 Wildflower meadow restoration on surface mines. (MS - Ecology).

Bera, A. Natural resources and social capital as assets of urban development in colonial Calcutta. (PhD-ARCH)

Ansari, S. 2018a Marsh-morphosis: A climate-responsive and adaptive design framework for habitat restoration and recreation in the Rumney Marsh Reservation. (MLA) [co-advised w/L. DuRussel]

Mainzer, S.\* 2017 A community landscape theory of pro-environmental behavior: the effects of environmental values and community interaction on residential energy consumption in two Pennsylvania towns. (PhD – Dual Degree ARCH/HDNRE.) [Co-adviser A. Luloff].

Zhang, J. 2016\* a Drought, Flood Control, and Stormwater management - Make Phnom Penh a more resilient city to adapt climate change. (MLA). [Co-adviser D. Lindberg].

Becker, A. 2013. A GIS Approach to Amphibian Site Prediction. MGIS.

Weaver, T. 2013. a Barriers and incentives to stream conservation practices in the Kishacoquillas Valley. (MLA)

Lindell, N. 2012. a Exploring the effectiveness of design principles in zoological park design. (MLA)

Love, T. 2009. How to create an effective GIS for Chesapeake Bay Riverkeeper organizations. (MGIS)

Romanello, G. 2009. *Microstegium vimineum* invasion in central Pennsylvanian slope, seep wetlands: site comparisons, seed bank investigation and water as a vector for dispersal. (MS-Ecology)

Gordon, K. 2009. Factors influencing the accumulation of soil organic matter: patterns and processes of productivity and decomposition in two created wetlands in central Pennsylvania. (MS-Forest Science) [Co-advised w/W. Myers].

Harvey, C. 2008. Undam it part two-Minimizing the visual and social impacts of small dam removal using visual assessment. (MLA)

Brazell, C. 2007. Undam it- Impacts on riparian wetlands from the removal of small dams. (MLA)

Sonntag, D. 2006. The impact of design on the cost of wetland mitigation in central Pennsylvania. (MLA)

Clark, W. \* 2005. Water resources conflict in Bulgaria (PhD -Forest Science) [Co-adv. J. Finley].

Hoeltje, S. 2005. Functional assessment of created and natural wetlands in central Pennsylvania. (MS - Ecology)

Hough, Z. 2006. Decomposition dynamics in riparian depression and slope wetlands of central Pennsylvania. (MS - Ecology)

Sherrill, U. R. 2002. The utility of the common snapping turtle (*Chelydra serpentina*) as an indicator species of exposure to polychlorinated biphenyls (PCBs) and chlorinated hydrocarbons. (MS - Ecology)

Reinhardt, C.H.1999. Historical analysis of wetland plant community response to disturbance. (MS - Ecology)

Urban, C.A. 2000. Biotic colonization and succession in created and restored wetlands of northwestern New York. (MS - Ecology)

Campbell, D.A.\*1996. Assessing the performance of created wetlands: A spatial and temporal analysis. (MS - Ecology)

Cruse, V.1992. An evaluation of the effectiveness of wetland mitigation in Broward County, Florida, permitted by the Florida Department of Environmental Regulation. (MS - Ocean Science, Nova University)

Other Graduate Committees:

Da Silveira, C.F. 2018 A systemic approach for integrative design of buildings and landscapes: towards ecosystem services provision in urban areas. Ph.D., ARCH. U. Poerschke, Chair.

Tebyanian, N. 2016 Development of an application for assessing ecological response to disturbance. M.S., M. Bose, Chair.

Dallos, M. 2015. Typology of corridors and implications for design. M.S., N. Korostoff, chair.

Hanson, W. 2014. Aquatic habitat characters that support both the Bridle Shiner (*Notropis bifrenatus*) and the Ironcolor Shiner (*Notropis chalybaeus*). WFS, PhD. J. Stauffer, Chair.

Grant, C. 2010. Mercury cycling and bioaccumulation in Pennsylvania headwater streams. PhD. Forest Science. Boyer and DeWalle, co-chairs.

Men, L. 2010. Applying comprehensive environment analysis with cognitive characteristics for preferable wayfinding design. MLA - P. Aeschbacher, chair.

Calmon, T. 2010. Advancing social sustainability in Brazil: Planning strategies for socio-spatial integration in Varjao, Brazil. MLA - C. Bowns, chair.

Bond, B. 2009. Balancing water use in the Pedernales region of the Dominican Republic for human use and conservation. MLA. L. Gorenflo, chair.

Gebo, N. 2009. Wetland mitigation issues. MS-Ecology. R. P. Brooks, chair.

Stern, N. 2008. Designing Clean Water: Wastewater Biofiltration Typologies, Elements, and Environmental Design Objectives. MLA. K. Tamminga, chair.

Schnars, J. L. 2008. The effect of contaminants on the common snapping turtle (*Chelydra serpentina serpentina*). PhD - Wildlife & Fisheries Science. J. Stauffer, chair.

White, B. 2007. Evaluation of fish host suitability for the dwarf wedgemussel, *Alasmidonta heterodon* (Bivalvia: Unionidae) in the upper Delaware River basin. MS- Wildlife & Fisheries Science. C. P. Ferreri, chair.

Ferrell, J. 2007. Analysis of the use of indicators in river basin assessments. MS- Forest Science. R. McKinstry, chair.

Filipczak, A. 2007. NPS sampling protocols. MS- Forest Science. J. Finley, chair.

Kong, N. 2006. Hydrogeomorphic landscape ecological mapping in Pennsylvania. PhD in Forest Science. W. Myers, chair.

Leckvarcik, L. 2005. Reintroduction of endangered shiners. PhD -Forest Science. J. Stauffer, chair.

Ryan, P. 2005. Functional assessment of wetlands in a headwater complex in PA. MS -Ecology. D.H. Wardrop, chair.

Torgerson, S. 2005. Halfmoon Creek restoration plan. MLA. K. Tamminga, chair.

Orndorff, R. 2005. Stream/river network structure in relation to physiographic province. MS-Forest Science. W. Myers, chair.

Hamilton, L. 2004. Natural design for zoos. MLA. With D. Jones, chair.

Patten, K. 2004. Physical and biological effects of habitat enhancement structures designed to increase habitat and stabilize streambanks. MS-Wildlife & Fisheries Science. R. Carline, chair.

Schnier, M. 2003. Assessment of Riparian Areas: Tool Development, Implementation, and Evaluation. MS -Wildlife & Fisheries Science. C. P. Ferreri, chair.

Spinola, M. 2003. Ecology of translocated river otters. PhD -Forest Science. R. Brooks, chair.

High, J. 2002. Internet forestry explorer. MS-Forest Science. M. Jacobson, chair.

Clark, W. 2002. Attitudes toward inter-basin water transfers and water resource management in Sofia and the Rila mountains of Bulgaria: A qualitative study. MEPC. G. Wang, chair.

Schmidt, K. 2002. Review of passive treatment methods for acid water in Pennsylvania. MFR. W. Sharpe, chair.

Mahaney, W. 2001. Impacts of human-mediated stressors on wetland plant community development. MS-Ecology. R.P. Brooks, chair.

Patil, S. 2001. Using GIS to estimate ecological parameters. MLA. M. Pihlak, chair.

Walia, S. 2001. Stormwater management. MLA. S. Echols, chair.

Brummer, M. 2001. A History of the Ole Bull State Park. MLA. T. Yahner, chair.

Wasser, L. 2001. The power of participation. MLA. S. Dennis, chair.

Lipton, C. J. 1998. Millbrook marsh natural history. MS -Ecology. R. P. Brooks, chair.

Gustkey, A. S.1997. Utilizing constructed wetlands for domestic wastewater treatment. MEPC. H. Elliot, chair.

Touchette, B. 1993. Sublethal impacts of an oil spill on *Rhizophora mangle*, *Avicennia germinans*, and *Laguncularia racemosa* seedlings. MS, Nova University. B. Baca, chair.

**Refereed Publications:**

2018 Weaver, T., and C. A. Cole. Barriers and incentives to stream conservation: The influence of culture on buffer design and implementation. Agricultural Systems – In review. July 25, 2018.

 Cole, C. A. Creation ecology: Redefining novel/designed ecosystems. In preparation.

 Ansari, S., C. A. Cole, and L. DuRussel. Marsh-morphosis: A climate-responsive and adaptive design framework for habitat restoration and recreation in the Rumney Marsh Reservation. Restoration Ecology – In preparation. June 2018.

2017 Cole, C. A. Assessment of a judgment-based hydrogeomorphic wetland classification using long-term hydrologic data. Ecohydrology 2017;10:e1761. doi:10.1002/eco.1761.

2016 Cole, C. A. HGM: a call for model validation. Wetlands Ecology and Management 24:579-585.

2013 Cole, C. A., C. A. Urban, P. Russo, J. Murray, D. Hoyt, and R. P. Brooks. Herbaceous plant community composition in created wetlands over seven years in northern New York USA. Studies in the History of Gardens & Designed Landscapes 33(3):235-247.

2009 Brazell, C., and C. A. Cole. Wetlands and run-of-the-river dams: A comparative survey of wetland vegetation at a dam site before removal and at three sites post-removal. Journal of the Pennsylvania Academy of Science 83 (2/3):55-62.

 Hoeltje, S. M., and C. A. Cole. Comparison of function of created wetlands of two age classes in central Pennsylvania. Environmental Management 43:597-608.

 Hough, Z., and C. A. Cole. Decomposition in riparian depression and slope wetlands of central Pennsylvania. Aquatic Ecology 43:335-349.

 Peterson-Smith, J., D. H. Wardrop, C. A. Cole, C. P. Cirmo and R. P. Brooks. Hydrogeomorphology, environment, and vegetation associations across a latitudinal gradient in highland wetlands of the northeastern USA. Plant Ecology 203:155–172.

2008 Cole, C. A., C. P. Cirmo, D. H. Wardrop, R. P. Brooks, and J. E. Peterson-Smith. Transferability of an HGM wetland classification scheme to a longitudinal gradient of the central Appalachian Mountains: initial hydrological results. Wetlands 28:439-449.

 Sonntag, D. H., and C. A. Cole. Determining the feasibility and cost of an ecologically-based wetland design for a mitigation wetland in central Pennsylvania. Landscape and Urban Planning 87:10-21.

2007 Hoeltje, S. M., and C. A. Cole. Losing function through wetland mitigation in central Pennsylvania, USA. Environmental Management 39:385-402.

2006 Brooks, R. P., D. H. Wardrop, and C. A. Cole. Inventorying and monitoring wetland condition and restoration potential on a watershed basis with examples from Spring Creek watershed, Pennsylvania, USA. Environmental Management 38:673-687.

 Cole, C. A. HGM and wetland functional assessment: Six degrees of separation from the data? Ecological Indicators 6:485-493.

 Cole, C. A., C. A. Urban, P. Russo, J. Murray, D. Hoyt, and R. P. Brooks. Comparison of the long-term water levels of created and natural reference wetlands in northern New York, USA. Ecological Engineering 27:166-172.

2005 Brooks, R. P., D.H. Wardrop, C. A. Cole, and D.A. Campbell. Are we purveyors of wetland homogeneity?: A model of degradation and restoration to improve wetland mitigation performance. Ecological Engineering 24:331-340.

2002 Cole, C. A. The assessment of herbaceous plant cover in wetlands as an indicator of function. Ecological Indicators 56:1-7.

 Cole, C. A., and D. Shafer. Section 404 wetland mitigation and permit success criteria in Pennsylvania, USA, 1986-1999. Environmental Management 30:508-515.

 Cole, C. A., P. W. Shaffer, M. E. Kentula, and R. P. Brooks. A comparison of the hydrology of wetlands in Pennsylvania and Oregon as an indicator of the transferability of HGM functional models between regions. Environmental Management 30:265-278.

 Campbell, D. A., C. A. Cole, and R. P. Brooks. A comparison of created and natural wetlands in Pennsylvania, USA. Wetlands Ecology and Management 10:41-49.

2001 Cole, C. A., R. P. Brooks, and D. H. Wardrop. Assessing the relationship between biomass and soil organic matter in created wetlands of central Pennsylvania, USA. Ecological Engineering 17:423-428.

2000 Cole, C. A., and R. P. Brooks. Patterns of wetland hydrology in the Ridge and Valley Province, Pennsylvania, USA. Wetlands 20:438-447.

 Reinhardt, C. H., C. A. Cole, and L. R. Stover. A method for coring inland, freshwater wetland soils. Wetlands 20:421-425.

 Shaffer, P. W., C. A. Cole, M. E. Kentula, and R. P. Brooks. Effects of measurement frequency on water level summary statistics. Wetlands 20:148-161.

 Cole, C. A., and R. P. Brooks. A comparison of the hydrologic characteristics of natural and created mainstem floodplain wetlands in Pennsylvania. Ecological Engineering 14:221- 231.

1999 Cole, C.A. Book Review: Ecology of wetlands and associated systems. Wetlands 19:298-299.

1998 Reinhardt, C.H., C.A. Cole, and R. P. Brooks. Assessing historical wetland seed banks using Cs137: A pilot study. Journal of the Pennsylvania Academy of Science: 71:125-134.

1997 Cole, C.A. Study raises questions about the use of restored mangroves by birds, suggests value of organic soil amendments (Florida). Restoration & Management Notes 15:190-191.

 Cole, C.A., R. P. Brooks, and D.H. Wardrop. Wetland hydrology and water quality as a function of hydrogeomorphic subclass. Wetlands 17:456-467.

 Babb, J. S., C.A. Cole, R. P. Brooks, and A.W. Rose. Hydrogeomorphology, watershed geology, and water quality of wetlands in central Pennsylvania. Journal of the Pennsylvania Academy of Science 71:21-28.

 Goslee, S.G., R. P. Brooks, and C.A. Cole. Plants as indicators of wetland water source. Plant Ecology 131:199-206.

1995 Cole, C.A., and S. Bratton. Freshwater wetlands of the Cape Hatteras National Seashore: Water quality in a resort setting. Natural Areas Journal 15:136-147.

1992 Cole, C.A. Hidden door to the ivory tower: An academic job search. Bulletin of the Ecological Society of America 73:227-230.

 Cole, C.A. Wetland vegetation ecology on a reclaimed coal surface mine in southern Illinois, USA. Wetlands Ecology and Management 2:135-142.

1991 Cole, C.A. The seed bank of a young surface mine wetland. Wetlands Ecology and Management 1:173-184.

 Cole, C.A., and E. A. LeFebvre. Soil and water characteristics of a young surface mine wetland. Environmental Management 15:403-410.

1990 Cole, C.A., and E. A. LeFebvre. Perceptions and attitudes of wildlife professionals towards the Habitat Evaluation Procedures (HEP). Trans. Ill. Academic. Sci. 82:151-158.

1983 Cole, C.A., and R. L. Smith. Habitat suitability indices for monitoring wildlife populations--An evaluation. Trans. North American Wildlife and Natural Resources Conf. 48:367-375.

**Book and Symposia Chapters:**

2014 Cole, C. A., and D. E. Somerville. Chapter 8: United States wetland regulation, policy and assessment. Pp. 203-224 *In* D. A. Batzer and R. R. Sharitz (eds.) Ecology of freshwater and estuarine wetlands. 2nd edition. University of California Press.

2013 Hychka, K., R. P. Brooks, and C. A. Cole. Wetland hydrology in the mid-Atlantic region. Pp. 109-128 *In* R. P. Brooks and D. H. Wardrop (eds.), Mid-Atlantic Freshwater Wetlands: Advances in Wetlands Science, Management, Policy and Practice. Springer.

2011 Cole, C. A., and M. E. Kentula. Wetland monitoring and assessment. Pp.137-152 *In* B. LePage, ed., Wetlands - Integrating Multidisciplinary Concepts. Springer. 261pp.

2009 Love, T., C. Trumbauer, and C. A. Cole. Implementation of a pilot GIS for a volunteer-based water quality monitoring program. Proceedings of Geoinformatics 2009, 17th International Conference on Geoinformatics, George Mason University, Fairfax, VA., August 2009.

2002 Brooks, R. P., D. H. Wardrop, C. A. Cole, and K. R. Reisinger. Using reference wetlands for integrating wetland inventory, assessment, and restoration for watersheds. Pp. 9-15 *In* R. W. Tiner (compiler). Watershed-based wetland planning and evaluation. A collection of papers from the Wetland Millennium Event, 6-12 August 2000, Quebec City, Quebec, Canada. Assoc. State Wetland Managers, Inc., Berne, NY. 141pp.

1999 Cole, C.A. Ecological theory and its role in the rehabilitation of wetlands. Pp. 265-275 *In* W. J. Streever, ed., An International Perspective on Wetland Rehabilitation. Kluwer Acad. Publishers, The Netherlands.

 Cole, C.A. Mines, mining hazards, and mine drainage. Pp. 410-412 *In* D.E. Alexander and .W. Fairbridge, eds. The Encyclopedia of Environmental Science. Kluwer Academic Publishers, Dordrecht, The Netherlands.

 Cole, C.A. Surface mining, strip mining, and quarries. Pp. 586-587 *In* D. E. Alexander and R.W. Fairbridge, eds. The Encyclopedia of Environmental Science. Kluwer Academic Publishers, Dordrecht, The Netherlands.

1998 Cole, C.A. Theoretical function or functional theory? Issues in wetland creation. Pp. 679-690 *In* A. J. McComb and J. A. Davis (eds.), Wetlands for the Future. Contributions from INTECOL's V International Wetlands Conference. Gleneagles Press, Adelaide, Australia.

1997 Brooks, R. P., C.A. Cole, D. H. Wardrop, L. Bishel, and D. J. Prosser. Assessing wetland condition and restoration potential within watersheds using a performance criteria matrix. Abstract. Pp. 272 *In* K. B. Macdonald and F. Weinman (eds.), Wetland and riparian restoration: Taking a broader view. EPA 910-R-97-007, USEPA, Region 10, Seattle, Washington.

1996 Cole, C.A., R.P. Brooks, D.H. Wardrop, L.A. Bishel, S.C. Goslee, and D.J. Prosser. Assessing watershed approaches for protecting Pennsylvania's wetlands. Pp. 72-76 *In* J.A. Kusler, D. E. Willard, and H.C. Hull, Jr., eds., Wetlands and watershed management: Science applications and public policy. Institute for Wetland Science and Public Policy, Berne, NY.

 Ribic, C.A., S. W. Johnson, and C.A. Cole. Distribution, type, accumulation, and source of marine debris in the United States, 1989-93. Pp.35-47 *In* Marine Debris (J. M. Coe and D.B. Rogers, eds.), Springer-Verlag, New York, NY.

1993 Cole, C.A., and F. K. Turner. The waterfowl hunt at the Cape Hatteras National Seashore:1958-1989. pp. 145-159 *In* C.A. Cole and F. K. Turner (eds.), Barrier Island Ecology of the Mid-Atlantic Coast: A Symposium. Technical Report NPS/SER CAHA/NRTR-93/04. National Park Service, Southeast Regional Office, Atlanta, GA.

1992 Cole, C.A. Conflict at Cape Hatteras: Coastal wetland water quality in a resort environment. Pp. 154-159 *In* M.C. Landin (ed.), Proc. 13th Annual Conf., Society of Wetland Scientists, SWS South Central Chapter, Utica, MS.

1991 Cole, C.A. Live and let die: The Outer Banks of North Carolina. Pp. 643-661 *In* J.A. Kusler (compiler). Conf. Ecotourism and resource conservation. Soc. Wetland Managers, Berne, NY.

 Cole, C.A. The Outer Banks of North Carolina, natural resources and growth: Big plans for some little islands. Pp. 286-291 In M.L. Miller and J. Auyong (eds.), Proc. 1990 Cong. Coastal Marine Tourism. Vol. I. National Coastal Resources Res. Development Inst., Newport, OR.

1987 Cole, C.A. Surface mine wetland hydrology and effects on vegetative community structure. Pp. 471-498 *In* C.L. Carlson and J. H. Swisher (eds.), Innovative approaches to mined land reclamation. Southern Illinois University Press, Carbondale.

1986 Cole, C.A. Morphometry, hydrology, and some associated water quality fluctuations of a surface mine wetland complex. Pp. 157-163 *In* D.H. Graves (ed.), Proc. 1986 Symposium on Surface Mining, Hydrology, Sedimentation, and Reclamation. Univ. KY, Lexington.

**Other Publications:**

2014 Cole, C.A. Wetlands. pp. 7122-7124 *In* A. C. Michalos (Ed.). Encyclopedia of Quality of Life and Well-Being Research. Dordrecht, Netherlands: Springer.

2010 Romanello, G., and C.A. Cole. Documenting the spread of *Microstegium vimineum* seed via water in slope seep wetlands of central Pennsylvania. Wetland Science and Practice 27(4): 6-11.

2008 Kauffman, G., A. Belden, A. Homsey, M. J. Porter, A. Zarnadze, J. Ehrenfeld, S. Stanwood, L. Sherwin, J. Farrell, D. DeWalle, and C.A. Cole. State of the Delaware River Basin Report. Technical Summary. Delaware River Basin Commission, West Trenton, NJ. 195 pp.

2002 Cole, C.A., and J. G. Kooser. HGM: Hidden, Gone, Missing? National Wetlands Newsletter 2:1, 16-18.

1999 Cole, C.A. A proposed model of ecosystem development for freshwater created wetlands. Bulletin of the Society of Wetland Scientists (suppl.). 16(2):A123 (abstract).

 Cole, C.A., and R. P. Brooks. A regional assessment of wetland hydrology using HGM. Bulletin of the Society of Wetland Scientists (suppl.). 16(2):A80 (abstract).

 Cole, C.A., C. A. Urban, R. P. Brooks, and D. Hoyt. Wetland soil development in created wetlands at Fort Drum, NY. Bulletin of the Society of Wetland Scientists (suppl.). 16(2):A98 (abstract).

 Reinhardt, C. H., C.A. Cole, and R. P. Brooks. Wetland plant community response to disturbance: A reconstruction of vegetation community history provided by wetland seed banks. Bulletin of the Society of Wetland Scientists (suppl.). 16(2):A37 (abstract).

 Wardrop, D. H., R. P. Brooks, and C.A. Cole. Tolerance groups of wetland plants for use in a plant-based index of biological integrity. Bulletin of the Society of Wetland Scientists (suppl.). 16(2):A15 (abstract).

1998 Cole, C.A., R. P. Brooks, and D. H. Wardrop. Building a better wetland - A response to Linda Zug. Wetland Journal. 10:8-11.

1997 Urban, C.A., C.A. Cole, and R. P. Brooks. Ecosystem development in created and restored wetlands of northwestern New York. Penn State School of Forest Resources Biennial Report 11:48.

1996 Cole, C.A., T.L. Serfass, M.C. Brittingham, and R.P. Brooks. Managing your restored wetland. College of Agric. Coop. Extension, Penn State University, University Park, PA. 44 pp.

1993 Cole, C.A., and F. K. Turner, eds. Barrier Island Ecology of the Mid-Atlantic Coast: A Symposium. Tech. Rep. NPS/SER CAHA/NRTR-93/04. National Park Service, Southeast Regional Office, Atlanta, GA. 208 pp.

1992 Cole, C.A. Marine debris on NPS beaches: A plastic, glass, metal nightmare. Park Science 12(4):22-23.

1987 Cole, C.A. On becoming a professional biologist. North Central Section, The Wildlife Society Newsletter 26(2):4-5.

1986 Cole, C.A. Opals of the Burning Star: Surface mine wetland habitat by chance. Mineral Matters 8(4):1-2.

**Technical Reports:**

2018 Cole, C. A., A. Bera, S. Rothman, and C. P. Ferreri. Fort Necessity National Battlefield Natural Resource Condition Assessment. Natural Resource Report NPS/XXXX/NRR—20XX/XXX. National Park Service, Fort Collins, Colorado. 109 pp.

 Cole, C. A., A. Bera, S. Rothman, and C. P. Ferreri. Friendship Hill National Historic Site Natural Resource Condition Assessment. Natural Resource Report NPS/XXXX/NRR—20XX/XXX. National Park Service, Fort Collins, Colorado. xxx pp. [In revision]

2016 Cole, C.A. Riparian plant communities in two state parks potentially affected by Marcellus Shale development. WRCP# 12452. Pennsylvania DCNR, March 2016. 6 pp+.

2014 Wagner, R., C.A. Cole, M. Brittingham, C. P. Ferreri, L. Gorenflo, M. W. Kaye, B. Orland, and K. Tamminga. Saratoga National Historical Park Natural Resource Condition Assessment. Natural Resource Report NPS/NETN/NRR 2014/751. National Park Service, Fort Collins, Colorado. 240 pp.

Wagner, R., C.A. Cole, M. Brittingham, C. P. Ferreri, L. Gorenflo, M. W. Kaye, B. Orland and K. Tamminga. Morristown National Historical Park Natural Resource Condition Assessment. Natural Resource Report NPS/NERO/NRR—2014/869. National Park Service, Fort Collins, Colorado. 219 pp.

2012 Cole, C.A., R. Wagner, M. C. Brittingham, C. P. Ferreri, L. Gorenflo, M. W. Kaye, B. Orland, and K. Tamminga. Natural resource condition assessment for the Roosevelt-Vanderbilt National Historic Sites (ROVA). Natural Resource Report NPS/NER/NRR—2012/557. National Park Service, Fort Collins, Colorado. 236 pp.

Cole, C.A. Schoolyard Wetlands and Monitoring for Participating Youth [SWAMPY] in K-12. Final report to The Stuckeman Collaborative Design Research Fund, November 6, 2012. 3pp.

2008 Cole, C.A. Ecological Impacts of Design - Interstate 99 as a means for the introduction of a highly invasive plant species (*Microstegium vimineum*) into wetlands on the Bald Eagle ridge, central Pennsylvania. Final report - CAA, Penn State University.

2007 Cole, C.A. I-99 Wetland Monitoring and Assessment Project: Final Report to PennFuture. Harrisburg, PA.

 Cole, C.A. The impact of the removal of the McCoy-Linn dam on riparian and wetland plant communities: 2007 report. Clearwater Conservancy, State College, PA.

2006 Cole, C. A., C. Cirmo, R. P. Brooks, and D. H. Wardrop. Assessing an HGM based wetland classification and assessment scheme along a 1000 km gradient of the Appalachian Mountains. Final Report for Grant R-82949701-0. US Environmental Protection Agency, Washington, DC.

2004 Brooks, R. P., D. H. Wardrop, and C.A. Cole. 2004. Monitoring wetlands for inventory, condition assessment, and restoration potential on a watershed basis; a case study from the Spring Creek watershed, Pennsylvania, USA. *In* R.P. Brooks (ed.). Monitoring and Assessing Pennsylvania Wetlands. Final Report for Cooperative Agreement No. X-827157-01, between Penn State Cooperative Wetlands Center, Pennsylvania State University, University Park, PA and U.S. EPA, Office of Wetlands, Oceans, and Watersheds, Washington, DC.

Wardrop, D.H., R.P. Brooks, L. Bishel-Machung, C.A. Cole, and J. M. Rubbo. Wetlands sampling protocol in support of hydrogeomorphic (HGM) functional assessment. *In* R.P. Brooks (Ed.). Monitoring and Assessing Pennsylvania Wetlands. Final Report for Cooperative Agreement No. X-827157-01, between Penn State Cooperative Wetlands Center, Penn State Univ., University Park, PA and U.S. EPA, Office of Wetlands, Oceans, and Watersheds, Washington, DC.

 Brooks, R. P., J. M. Rubbo, D. H. Wardrop and C.A. Cole. Hydrogeomorphic Variables: Definitions, Rationale, and Scoring. *In* R.P. Brooks (Ed.). Monitoring and Assessing Pennsylvania Wetlands. Final Report for Cooperative Agreement No. X-827157-01, between Penn State Cooperative Wetlands Center, Pennsylvania State University, University Park, PA and U.S. EPA, Office of Wetlands, Oceans, and Watersheds, Washington, DC.

Brooks, R. P., D. H. Wardrop, J. M. Rubbo, W. M. Mahaney, and C.A. Cole. Hydrogeomorphic functional assessment models by wetland type for Pennsylvania ecoregions. *In* R.P. Brooks (Ed.). Monitoring and Assessing Pennsylvania Wetlands. Final Report for Cooperative Agreement No. X-827157-01, between Penn State Cooperative Wetlands Center, Pennsylvania State University, University Park, PA and U.S. EPA, Office of Wetlands, Oceans, and Watersheds, Washington, DC.

2003 Cole, C.A. Bi-annual mitigation monitoring report for Fort Drum: Spring 2003. Final project report to the U.S. Army for long-term wetland monitoring project at Fort Drum, New York.

2002 Cole, C.A. Characterizing wetland hydrology in Pennsylvania: Extending a long-term data set for use in HGM model validation. Final Project Report to FHWA. Contract # DTFH61-01-P- 00239.

2000 Cole, C.A. Final report: Assessing wetland mitigation success criteria as found in Section 404 permits - The relationship between structure and function. U. S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.

 Cole, C.A., R. P. Brooks, and D. H. Wardrop. Watersheds and wetlands: Large-scale disturbances and small scale responses. Final report to the U. S. Environmental Protection Agency, EPA GR824905-01-0. Penn State Cooperative Wetlands Center, University Park, PA.

1998 Cole, C.A., and C. A. Urban. Final Project Report: Pattern and Process of Wetland Creation and Succession at Fort Drum, New York. The Environmental Division, Fort Drum Army Installation. Penn State Cooperative Wetlands Center, University Park, PA.

 Wardrop, D. H., R. P. Brooks, L. Bishel-Machung, and C.A. Cole. Hydrogeomorphic (HGM) functional assessment models for Pennsylvania wetlands. Report 98-6, Penn State Cooperative Wetlands Center, ERRI and School of Forest Resources, The Pennsylvania State University, University park, PA.

1996 Brooks, R.P., C.A. Cole, D.H. Wardrop, L. Bishel-Machung, D.J. Prosser, D.A. Campbell, and M.T. Gaudette. Wetlands, wildlife, and watershed assessment techniques for evaluation and restoration (W3ATER). Vo. 1, 2A, and 2B. Report Number 96-2, Penn State Cooperative Wetlands Center, University Park, PA. Final report to the Pennsylvania Department of Environmental Protection.

 Cole, C.A., and R.P. Brooks. Hydrology of wetlands in central Pennsylvania. Final report to the U.S. Environmental Protection Agency, Corvallis, OR.

1995 Cole, C.A. Final report of the National Park Marine Debris Monitoring Program: 1993 marine debris surveys with a summary of data from 1988-1993. U.S. Department of the Interior, National Park Service, Washington, D.C.

 Cole, C.A., W. P. Gregg, and D.A. Manski. Annual report of the National Park Marine Debris Monitoring Program: 1992 marine debris surveys with summary of data from 1988-1992. File Report, U.S. Department of the Interior, National Park Service, Washington, D.C.

1992 Cole, C.A., W. P. Gregg, D.V. Richards, and D.A. Manski. Annual report of the National Park Marine Debris Monitoring Program: 1991 marine debris surveys. Tech. Rep. NPS/NRWV/NRTR-91/07, U.S. Department of the Interior, National Park Service. Washington, DC.

1991 Manski, D.A., W. P. Gregg, C.A. Cole, and D.V. Richards. Annual report of the National Park Marine Debris Monitoring Program: 1990 marine debris surveys. Tech. Rep. NPS/NRWV/NRTR-91/07, U.S. Department of the Interior, National Park Service. Washington, DC.

 Cole, C.A. Surface water quality, Cape Hatteras National Seashore, North Carolina, 1988-1991. Final report to the Cape Hatteras National Seashore, Manteo, NC.

1990 Cole, C.A., J. Kumer, D. Manski, and D. Richards. Annual report of National Park marine debris monitoring program: 1989 marine debris survey. Tech. Rep. NPS/NRWV/NRTR- 90/04, U.S. Department of the Interior, National Park Service, Washington, D.C.

**Grants and Contracts**

2018 Smithwick, E., J. Kaye, A. Graefe, L. Glenna, K. Keller, D. Bird, J. Brownson, C. A. Cole, and C. Grady. 2018. NRT-INFEWS: Landscape-U, Impactful partnerships among graduate students and managers for regenerative landscape design. National Science Foundation. $3,000,000. \* Cole as Senior personnel.

Miller, D., C. A. Cole, and J. Duncan. Assessing wetland characteristics of 0-order contributing streams above montane headwater wetland-stream complexes in the Appalachian Mountains – A Pennsylvania Assessment. Penn State Institutes for Energy & the Environment. $25,000.

2017 Cole, C. A., E. Pennypacker, M. Hadighi, and K. Foster. Support for E+D: Ecology & Design. Application to PSU Strategic Planning process. $242,603.

Cole, C. A. Support for CEDAR (Center for Ecological Design and Restoration): 2017-2019. Stuckeman Fund for Collaborative Design Research. $10,000.

2016 Cole, C.A., R. Brennan, P. Drohan, S. Echols, C.P. Ferreri, L. Gorenflo, L. Iulo, N. Korostoff, S. Mainzer, D. Miller, E. Pennypacker, U. Poerschke, E. Smithwick, and K. Tamminga. Proposal to develop a Center for Ecological Design and Restoration (CEDAR). Submitted to Ecology Institute, PSU. $22,000. [$2000 from EI, $10,000 each from LArch and CAA]

2015 Cole, C. A., K. Davis, C. P. Ferreri, Y. Shi, J. Anderson, D. De Steven, B. Collins, and M. Schweisberg. Appalachian springs – the effect of climate change on groundwater-fed wetlands and headwater streams of the Appalachians: A planning meeting proposal. Penn State Institutes for Energy and the Environment. $6,000.

Cole, C. A. Westerly to the wetland: Tracing the effects of wetlands on stormwater flow on soils and plants. PA Department of Environmental Protection Environmental Education Grant. $2599.

2014 Cole, C. A., and C. P. Ferreri. Assessment of natural resource condition at two national park units in the Eastern Rivers and Mountains Network (ERMN): Fort Necessity National Battlefield (FONE) and Friendship Hill National Historic Site (FRHI). National Park Service. $90,000.

Cole, C. A. Westerly to the wetland. Hamer Center for Community Design. $5000.

2013 Cole, C. A., and C. P. Ferreri. Aquatic resources in nine state parks potentially affected by Marcellus shale development. PA DCNR Wild Resources Fund. $33,600.

2012 Cole, C. A. Support for a wetland education and outreach project in cooperation with ARCH. Hamer Center for Community Design, SSALA. $500.

Cole, C. A. Instrumenting Nature: Bringing real-time data into the K-12 curriculum. USGS, PA WRRC grant. $11,405.

2011 Cole, C. A. Schoolyard Wetlands and Monitoring for Participating Youth [SWAMPY] in K-12. The Stuckeman Collaborative Design Research Fund. $14,000.

2010 Sliwinski, M., B. Orland, M. Bose, C. A. Cole, K. Davis, C. P. Ferreri, W. Gerin, and M. Sciegaj. Environmental and psychosocial risk regulators of stress in time and context. Penn State University Marcellus Shale Initiative. $65,881.

Cole, C. A., T. Murtha, B. Orland, L. Gorenflo, and N. Korostoff. The Marcellus Shale Studio – The intersection of natural resources, communities, and natural gas exploration in Pennsylvania. College of Arts & Architecture, Incentives and Innovation Fund. $14,897.

2009 Cole, C. A., C. P. Ferreri, M. C. Brittingham, C. P. Cirmo, B. M. Evans, L. J. Gorenflo, M. W. Kaye, D. J. Nadenicek, B. Orland, S. A. Sheeder, K. Tamminga, and C. Tzilkowski. Assessment of natural resource condition at three national parks in the Northeast Region: Roosevelt-Vanderbilt National Historic Sites (ROVA), Saratoga National Historic Park (SARA), and Morristown National Historic Park (MORR). National Park Service. $124,950. [An additional $5000 added in 2013]

2006 Cole, C. A. The ecological impacts of design - monitoring the spread of an invasive plant species (*Microstegium vimineum*) along the I-99 corridor. College of Arts & Architecture, Penn State University. $5,200.

 Cole, C. A. Restoring free-flowing rivers and streams: The impact of the removal of the McCoy-Linn dam on riparian and wetland plant communities. PA Fish and Boat Commission, Clearwater Conservancy. $17,000.

2005 DeWalle, D. R., C. A. Cole, and L. S. Sherwin. Delaware River Basin - State of the basin report card. Subcontract - Delaware River Basin Commission. $62,538.

2004 Cole, C. A. Wetland monitoring and assessment project: Natural wetlands of the Bald Eagle Ridge and Valley. Penn Future. $108,000.

2003 Tamminga, K. R., and C. A. Cole. 2003. LArch 453/453A Ecological Restoration Studio & Seminar, Spring 2004. Course development/enhancement proposals to link teaching and learning to the civic, cultural, artistic, social, economic, or educational needs of the community. Penn State University. $1500.

 Sherwin, L. S., and C. A. Cole. The Halfmoon Creek Restoration Plan. Pennsylvania DEP - Growing Greener Program. Pennsylvania DEP - Growing Greener Program. $70,000.

2002 Sherwin, L. S., and C. A. Cole. Watershed assessment and planning "Keystone Projects". Pennsylvania DEP - Growing Greener Program. $49,784.

 Sherwin, L. S., and C. A. Cole. "Graduate Research Assistantship - Spruce Creek Watershed Keystone Project.” Pennsylvania Water Resources Research Center. $14,914.

 Cole, C. A., and K. R. Tamminga. Graduate assistantship for the Penn State Arboretum - Planning a wetland mitigation project. (Half-time and tuition). Office of the Vice President for Research. $20,000.

2001 Cole, C. A., D. H. Wardrop, R. P. Brooks, and C. P. Cirmo. Assessing an HGM-based wetland classification and assessment scheme along a 1000 km gradient of the Appalachian Mountains: Hydrology, soils, and wetland function. US EPA STAR Grant. $973,301.

 Cole, C. A. Misapplying nature's blueprint: Are created wetlands too flat? College of Arts & Architecture, Penn State University. $4000.

 C. A. Cole. Characterizing wetland hydrology in Pennsylvania: Extending a long-term data set for use in HGM model validation. FHWA. $58,127.

2000 Brooks, R. P., C. A. Cole, and D. H. Wardrop. Development of an HGM Regional Guidebook for Wetlands of the Ridge and Valley Province of the Central Appalachian Mountains. U. S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS. $25,000.

 Cole, C. A. Assessing wetland mitigation success criteria as found in Section 404 permits - The relationship between structure and function. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS. $28,230.

1998 Cole, C.A. Pattern and process of wetland creation and succession at Fort Drum, NY: Phase IV- Wetland mitigation bank feasibility and design. Subcontract to Gannett Fleming, Hyde, PA. $17,000.

 Cole, C.A., and R.P. Brooks. Assessing the success of wetland creation efforts at Fort Drum, New York. U.S. Army, Ft. Drum. $238,378.

1997 Bingham, B., T. Collins, R. Goto, B. Rogers, J. Stephen, C. A. Cole, P. Johnson, I. Nair, J. Rawlins, P. Richards, K. Tamminga, J. Tarr, and S. Thompson. Ample Opportunity II. The brownfield intervention. The transformation of an urban brownfield into a river valley greenway. The Heinz Endowments, Pittsburgh, PA. $250,000 [PSU subcontract $44,500]

1996 Tamminga, K. R., and C.A. Cole. Upgrading Penn State's C&DE Wetland Design course. Program Innovation Fund Proposal, Continuing and Distance Education, Penn State University, University Park, PA. $6,954.

Cole, C.A., R.P. Brooks, D.H. Wardrop, and L.A. Bishel. Watersheds and wetlands: Large-scale disturbances and small-scale responses. National Science Foundation and the US Environmental Protection Agency Partnership for Environmental Research. $742,079.

1995 Cole, C.A., and R.P. Brooks. Pattern and process of wetland creation and succession at Fort Drum, NY. Phase II. U.S. Army, Ft. Drum. $106,000.

1994 Cole, C.A., and R.P. Brooks. Pattern and process of wetland creation and succession at Fort Drum, NY. Phase I. U.S. Army, Ft. Drum. $100,000.

 Brooks, R.P., and C.A. Cole. Wetland hydrology on reference and mitigation wetlands. USEPA Corvallis Research Lab. $26,600.

1993 Brooks, R.P., and C.A. Cole. Wetland mitigation at Fort Drum, New York. Subcontract to Stetson- Harza, Utica, New York. $29,459.

1991 Cole, C.A., and J. Gregory. The hydrology of Hatteras Island maritime forests and the impacts of groundwater withdrawal. National Park Service, Southeast Regional Office, Atlanta, GA. $46,451.

1990 Cole, C.A. Water quality monitoring on Bodie Island and Buxton Woods, Cape Hatteras National Seashore. National Park Service, Water Resources Division, Denver, CO. $80,000.

 Cole, C.A. Macro-invertebrate monitoring as an indicator of water quality. Eastern National Park and Monument Association. $3449.

1986 Cole, C.A., and E. A. LeFebvre. Surface mine wetland seed banks, productivity and community structure. SIUC $6600.

 Cole, C.A., and E. A. LeFebvre. Surface mine wetland seed banks, productivity, and community structure. NRA $2200.

1985 Cole, C.A. Surface mine wetland seed banks, productivity, and community structure. National Rifle Association $2000.

**Professional Presentations**

2018 Cole, C. A., S. P. Mainzer, and K. Mainzer. E+D: Ecology and Design - Improving the ecological function of the designed world. CELA – March 2018, Blacksburg, VA.

 Padt, F., and C. A. Cole. A Collective Landscape Approach: Practical Examples, Methods, and Training Options for Enhancing Properties with Buffers and Other BMPS. 2018 Riparian Forest Buffer Summit. PA DCNR, State College, March 1 and 2, 2018.

2017 Cole, C. A. The Center for Ecological Design and Restoration (CEDAR). Center for Pollinator Research, Spring Symposium 2017. Penn State University. May 16, 2017.

2016 Cole, C. A. Novel wetland ecosystems by design. Ecological Society of America Annual Meeting, Fort Lauderdale, FL. August 2016 [accepted but had to pull out due to family medical emergency]

Cole, C. A. Novel ecosystems by design. Novel Ecosystems Symposium, Penn State University, April 12, 2016.

2015 Cole, C. A. All wet - A decade of wetland hydrology in central Pennsylvania. 36th Annual Conference, Society of Wetland Scientists, Providence, RI. June 2, 2015

2014 Cole, C. A. Microclimatic comparison between a natural and created schoolyard wetland.35th Annual Conference, Society of Wetland Scientists, Portland, OR. May 2014

2013 Cole, C. A. Publishing in a newsletter/refereed journal hybrid – Wetland Science and Management. 34th Annual Conference, Society of Wetland Scientists, Duluth, MN. June 2013.

 Tyrna, A., R. P. Brooks, and C. A. Cole. Do wetlands within HGM subclasses really have predictable hydrologic patterns? A comparison of headwater floodplain wetlands in Pennsylvania. 34th Annual Conference, Society of Wetland Scientists, Duluth, MN. June 2013.

Orland, B., T. Murtha, and C. A. Cole. A Geodesign Approach for Energy Development-enabled Sustainability. CELA, Austin, TX. March 2013.

Cole, C. A. Ecological impacts from drilling for shale gas – streams, wetlands, forests. Ithaca Native Landscape Symposium. Ithaca, NY. March 2013.

2012 Padt, F., B. Orland, M. Bose, and C. A. Cole. The Changing Landscape: Planning and designing for energy development: Research Session White Paper. Marcellus Shale Academic Research Conference, Moon Township, PA. May 30-31, 2012.

 Cole, C. A. Schoolyard Wetlands: Creating Aquatic Spaces For Learning. 9th INTECOL International Wetlands Conference/33rd Annual Conference, Society of Wetland Scientists, Orlando, FL. June 3-8, 2012.

2011 Cole, C. A., K. Altenbach, D. Barefoot, L. Gotschall, E. Gross, E. Hahn, K. Hess-Reichard, D. Himes, C. Karduck, A. Luddy, J. Matthews, A. Miller, N. Monroe, D. Rebok, S. Rumbaugh, L. Schreiner, C. Smith, K. Waksmunski, M. Weir, D. Yackuboskey, F. Young, B. Orland, and C. Steinitz. Marcellus by Design. Keynote Address – Marcellus Summit, November 17-18, 2011. University Park, PA.

Sliwinski, M., B. Orland, K. D. Davis, M. Bose, M. Sciegaj, C. A. Cole and C. P. Ferreri. Perceptions of the Natural Environment and Health among Residents in Marcellus and Non-Marcellus Communities. Marcellus Shale Academic Applied Research Conference, PSU, Altoona, May 10-11, 2011.

Bose, M., B. Orland, K. D. Davis, M. Sliwinski, C. A. Cole, C. P. Ferreri, and M. Sciegaj. Effects of Marcellus Shale gas development on environment and health. ACSP 52nd Annual Conference, Salt Lake City, UT. October 13-16, 2011.

2009 Love, T., C. Trumbauer and C. Cole. Implementation of a Pilot GIS for a Volunteer Based Water Quality Monitoring Program The 17th International Conference on Geoinformatics 2009, George Mason University, August 12th 14th, Fairfax, VA.

 Cole, C. A., C. A. Urban, P. Russo, J. Murray, D. Hoyt, and R. P. Brooks. Comparison of herbaceous plant community composition in natural and created wetlands over seven years in northern New York USA. 30th Annual Conference, Society of Wetland Scientists, Madison, WI. June 2009.

 Romanello, G.A., and C. A. Cole. *Microstegium vimineum* invasion in central Pennsylvanian slope, seep wetlands: site comparisons, seed bank investigation and water as a vector for dispersal. 30th Annual Conference, Society of Wetland Scientists, Madison, WI. June 2009.

 Gordon, K., C. A. Cole, and W. L. Myers. Factors influencing the accumulation of soil organic matter: patterns and processes of productivity and decomposition in two created wetlands in central Pennsylvania. 30th Annual Conference, Society of Wetland Scientists, Madison, WI. June 2009. [Poster - Cole presented].

2008 Dam removals in Pennsylvania-workshop. Penn State University, May 8, 2008. Co-convener w/C.P. Ferreri.

 Cole, C. A. Impacts to slope wetlands from a new interstate highway in central Pennsylvania. 29th Annual Conference, Society of Wetland Scientists, Washington, D.C. May 2008.

 Cole, C. A. Impacts to riparian wetlands from the removal of a run-of-the-river dam in central Pennsylvania. 29th Annual Conference, Society of Wetland Scientists, Washington, D.C., May 2008.

2007 Cole, C. A. Creating wetlands and finding function. Ecological Landscaping, OARDC, The Ohio State University. Cleveland, OH. October 2007.

 Sonntag, D. H., and C. A. Cole. Determining the feasibility and cost of an ecologically-based design for a mitigation wetland in central Pennsylvania. 28th Annual Conference, Society of Wetland Scientists, Sacramento, CA. June 2007. [Cole presented]

 Cole, C. A., C. P. Cirmo, D. H. Wardrop, R. P. Brooks, and J. E. Peterson-Smith. Assessing the transferability of an HGM wetland classification scheme to a longitudinal gradient of the central Appalachian Mountains: Initial hydrological results. 28th Annual Conference, Society of Wetland Scientists, Sacramento, CA. June 2007. [Cole presented]

 Brazell, C., and C. A. Cole. Undam it - impacts on riparian wetlands from the removal of small dams. 28th Annual Conference, Society of Wetland Scientists, Sacramento, CA. June 2007. [Cole presented]

 Cole, C. A. Ecological impacts of design - the effects of an interstate highway construction project on aquatic resources of the Bald Eagle ridge, central Pennsylvania, USA. CELA Conference, August, 2008.

 Brazell, C., and C. A. Cole. Undam it! What happens when you remove an iconic cultural obstacle on a stream? CELA Conference, August, 2008. [Cole presented]

2006 Cole, C. A., C. Cirmo, and D. H. Wardrop. Using Hydrology to Compare a Regional Hydrogeomorphic (HGM) Classification across a Latitudinal Gradient of the Appalachian Mountains. 9th Annual Wetlands and Watershed Workshop, Atlantic City, NJ. October 23-25, 2006. [Cole presented]

 Sonntag, D., and C. A. Cole. Determining feasibility and cost of ecological wetland design: a case study of mitigation wetlands in central Pennsylvania. CELA, Vancouver, BC.

2005 Hoeltje, S. M., and C. A. Cole. Comparison of ecological functioning of created and natural wetlands in central Pennsylvania. Northeast Ecology & Evolution Conference, University Park, PA.

 Hoeltje, S. M, and C. A. Cole. Ecological functioning and characteristics of reference and created mainstem floodplain wetlands in Pennsylvania. 26th Annual Conference, Society of Wetland Scientists, Charleston, SC. [Cole presented]

 Hough, Z., and C. A. Cole. Decomposition dynamics in slope and riparian depression wetlands of central Pennsylvania. 26th Annual Conference, Society of Wetland Scientists, Charleston, SC. [Cole presented]

2004 Cole, C. A., and L. S. Sherwin. The Keystone Project: Engaging Penn State Students and Faculty with Local Communities and Stakeholders in "Hands-On" Watershed Stewardship. 4th Annual Outreach Scholarship Conference. Impact Through Engagement: Engaging Communities and Changing Lives. Penn State University, University Park, PA.

Cole, C. A. HGM and the data: Six degrees of separation? 25th Annual Conference, Society of Wetland Scientists, Seattle, WA.

Peterson, J. E., C. A. Cole, D. H. Wardrop, C. Cirmo, and R. P. Brooks. Assessing an HGM-based wetland classification and assessment scheme along a 1000 km gradient of the Appalachian Mountains: Hydrology, soils and wetland function. 25th Annual Conference, Society of Wetland Scientists, Seattle, WA.

 Hoeltje, S., and C. A. Cole. Comparison of created and natural wetlands using HGM functional assessment models. 25th Annual Conference, Society of Wetland Scientists, Seattle, WA.

 Kooser, J., R. Garono, and C. A. Cole. The use of assessment indices: are we losing power as we gain speed? 25th Annual Conf., Society of Wetland Scientists, Seattle, WA.

 Peterson, J. E., C. Cirmo, C. A. Cole, D. H. Wardrop, and R. P. Brooks. Assessing an HGM-based wetland classification and assessment scheme along a 1000 km gradient of the Appalachian Mountains. EPA STAR Workshop on Watershed and Aquatic Ecosystem Classification Methods, Washington, D.C.

2003 Cole, C. A. Long-term hydrologic monitoring in wetlands: BPJ, batteries, and black bears. Wetlands Workshop 2003 - Hydrology. US EPA, Region 3, Atlantic City, NJ.

 Cole, C. A. From damp to dry: the effect of a prolonged drought on water levels in wetlands of central Pennsylvania. 24th Annual Conference, Society of Wetland Scientists, New Orleans, LA.

 Cole, C. A., and L. S. Sherwin. The Keystone Project: Experiential Watershed Education. Workshop on Watersheds and Universities. Rutgers University.

 Cole, C.A., R. P. Brooks, and D. H. Wardrop. Watersheds and wetlands: Large-scale disturbances and small-scale responses. ReVA-MAIA EPA Conference, Valley Forge, PA. [Poster]

2002 Cole, C. A., D. H. Wardrop, R. P. Brooks, and C. P. Cirmo. Assessing an HGM-based wetland classification and assessment scheme along a 1000 km gradient of the Appalachian Mountains: Hydrology, soils, and wetland function. US EPA STAR Workshop, Denver, CO.

 Cole, C.A., and S. Siegfried. Long-term assessment of wetland mitigation at Fort Drum, New York: 1994-2001. 23rd Annual Conference, Society of Wetland Scientists, Lake Placid, NY.

 Sherwin, L. S., and C. A. Cole. The Keystone Project: Training Watershed Professionals Through Experiential Learning. 4th Biennial Conference on University Education in Natural Resources, Raleigh, NC. [Cole presented]

 Cole, C.A. The Keystone Projects: Watershed Stewardship in Pennsylvania. Keynote address: Commonwealth of Pennsylvania University Biologists, Annual Meeting, Lock Haven University.

2001 Cole, C.A. The Relationship of Soil Organic Matter to Plant Productivity in Emergent Wetlands of Pennsylvania: Growing, growing ...gone. The Dirt on Wetlands: Does Soil Organic Matter Enhance Ecosystem Function in Natural, Created, and Restored Wetlands? Symposium of the South Atlantic Chapter, SWS, Norfolk, VA.

 C. A. Cole. Wetland mitigation and Section 404 permits in Pennsylvania, USA, 1986-1999. 22nd Annual Conference, Society of Wetland Scientists, Chicago, IL.

 C. A. Cole. Success criteria in Section 404 permits: Does the measurement of percent plant cover equate to the measurement of function? 22nd Annual Conference, Society of Wetland Scientists, Chicago, IL.

 Cole, C. A. Wetland restoration. Ecological Restoration in Urban Parks. Pittsburgh Parks Conservancy, Pittsburgh, PA.

2000 C.A. Cole, R.P. Brooks and D.H. Wardrop. Assessing function in created wetlands: The relationship between biomass and organic matter. 21st Annual Conference, Society of Wetland Scientists, Quebec City, Quebec.

 Brooks, R. P., D. H. Wardrop, C. A. Cole, and K. Reisinger. Using reference wetlands for integrating wetland inventory, assessment, and restoration for watersheds. 21st Annual Conference, Society of Wetland Scientists, Quebec City, Quebec.

 Cole, C. A., R. P. Brooks, and D. H. Wardrop. Nature's blueprint - Using reference wetland information to create functional mitigation wetlands. Conf. on Management Strategies for Watersheds, Shippensburg Univ., PA.

 Brooks, R. P., D. H. Wardrop, and C. A. Cole. Integrating wetlands assessment into watershed restoration and protection plans: A vision for Pennsylvania. Conf. on Management Strategies for Watersheds, Shippensburg Univ., PA. [Cole presented]

1999 Cole, C. A. A proposed model of ecosystem development for freshwater created wetlands, 20th Annual Conference, Society of Wetland Scientists, Norfolk, VA.

 Cole, C. A., and R. P. Brooks. A regional assessment of wetland hydrology using HGM. 20th Annual Conference, Society of Wetland Scientists, Norfolk, VA.

 Cole, C. A., C. A. Urban, R. P. Brooks, and D. Hoyt. Wetland soil development in created wetlands at Fort Drum, NY. 20th Annual Conference, Society of Wetland Scientists, Norfolk, VA.

 Wardrop, D. H., R. P. Brooks, and C. A. Cole. Tolerance groups of wetland plants for use in a plant-based index of biological integrity. 20th Annual Conference, Society of Wetland Scientists, Norfolk, VA.

 Reinhardt, C. H., C. A. Cole, and R. P. Brooks. Wetland plant community response to disturbance: A reconstruction of vegetation community history provided by wetland seed banks, 20th Annual Conference, Society of Wetland Scientists, Norfolk, VA.

 Cole, C. A., R. P. Brooks, and D. H. Wardrop. Watersheds and wetlands: Large scale disturbances and small scale response. EPA/NSF Partnership for Environmental Research Water and Watersheds Program Review Meeting, Silver Spring, MD.

1998 Cole, C. A. (Organizer). "The interrelationships of wetlands and fisheries in the United States: A regional review." Symposia at the 1998 American Fisheries Society Annual Conference, Hartford, CT.

 Reinhardt, C. H., C. A. Cole, and R. P. Brooks. An historical analysis of wetland seed banks using Cs137. Annual Meeting of the Ecological Society of America, Baltimore, MD. [Cole presented]

 Urban, C. A., C. A. Cole, R.P. Brooks, J. Morgan, and D. Hoyt. Ecosystem development in mitigation wetlands of northwestern New York. Annual Meeting of the Ecological Society of America, Baltimore, MD. [Cole presented]

 Cole, C.A. Wetland research and HGM. Transportation Research Board Mid-Year Workshop, Salt Lake City, UT.

 Cole, C. A. Ecosystem change. Stewardship of watershed ecosystems. Wilson College and Kings Gap Environmental Education and Training Center, Pennsylvania Bureau of Parks, Kings Gap State Park.

 Cole, C. A., R.P. Brooks, and D.H. Wardrop. Using reference wetlands to manage your HGMs, IBIs, PCMs, and RAPs. Workshop on selecting and using wetland reference sites. Institute of ecosystem Studies and the Institute for Wetland Science and Public Policy, Millbrook, NY.

 Urban, C. A., and C. A. Cole. Wetland mitigation at Fort Drum, NY. New York State Wetland Forum, Albany, NY.

 Cole, C. A., R. P. Brooks, and D. H. Wardrop. Watersheds and wetlands: Large scale disturbances and small scale response. EPA/NSF Partnership for Environmental Research Water and Watersheds Program Review Meeting, Corvallis, OR.

1997 Cole, C. A., and R.P. Brooks. Hydrologic characteristics of natural, reference wetlands, and created wetlands, in central Pennsylvania. 18th Annual Conference, Society of Wetland Scientists. Bozeman, MT.

 Urban, C.A., C.A. Cole, R.P. Brooks, J. J. Morgan, and D. K. Hoyt. Herbaceous development in mitigation wetlands of northwestern New York. 18th Annual Conference, Society of Wetland Scientists. Bozeman, MT.

 Brooks, R.P., T. J. O'Connell, M.T. Gaudette, D.J. Prosser, D.H. Wardrop, C.A. Cole, and L. Bishel-Machung. Ecological indicators for assessing reference wetlands at a watershed scale. USEPA Third EMAP Research Symposium, Albany, NY.

 Wardrop, D.H., R.P. Brooks, and C.A. Cole. Measurement and prediction of sedimentation rates in central Pennsylvania wetlands and their impacts on wetland plant communities. USEPA Third EMAP Research Symposium, Albany, NY.

 Cole, C.A., R.P. Brooks, D.H. Wardrop, and L. Bishel-Machung. Functional assessment and reference wetlands in Pennsylvania. Wetlands '97: The future of wetland assessment. Parole, MD.

1996 Cole, C.A. Theoretical function or functional theory? Issues in wetland creation. Presented in the special symposium, Ecological theory and the creation and restoration of wetlands (C.A. Cole, Chair). Wetlands for the future. INTECOL's V International Wetlands Conference. Perth, Australia.

Brooks, R.P., C.A. Cole, D.H. Wardrop, L. Bishel-Machung, D.J. Prosser, and D.A. Campbell. Assessing wetland condition and restoration potential using a hydrogeomorphic classification key and a performance criteria matrix. INTECOL's V International Wetlands Conference. Perth, Australia.

 Brooks, R.P., D.H. Wardrop, and C.A. Cole. Use of reference wetlands to assess wetlands conditions. Wetlands: Biological Assessment Methods and Criteria Development Workshop. Boulder, CO.

 Brooks, R.P., D.H. Wardrop, L. Bishel-Machung, T. J. O'Connell, M.T. Gaudette, D.J. Prosser, and C.A. Cole. Applying hydrogeomorphic (HGM) concepts to ecological indicator development. Wetlands: Biological Assessment Methods and Criteria Development Workshop. Boulder, CO.

 Brooks, R.P., L. Bishel, D.H. Wardrop, C.A. Cole, D.J. Prosser, and D.A. Campbell. Assessing wetland condition and restoration potential using a hydrogeomorphic classification key and a performance criteria matrix. 17th Annual Conference, Society of Wetland Scientists, Kansas City, MO.

 Wardrop, D.H., R.P. Brooks, and C.A. Cole. Measurement and prediction of sedimentation rates in central Pennsylvania wetlands and their impact on wetland plant communities. 17th Annual Conference, Society of Wetland Scientists, Kansas City, MO.

Brooks, R.P., C.A. Cole, L. Bishel, D.H. Wardrop, D.J. Prosser, D.A. Campbell, T.L. Serfass, T. J. O'Connell, M.T. Gaudette, and C.A. Urban. Wetlands, watersheds, and wildlife: approaches to assessing wetland condition and restoration potential in a landscape context. Poster presented at the Annual Meeting PA Chapter of The Wildlife Society, Gettysburg, PA.

 Babb, J., C.A. Cole, A. Rose, and R.P. Brooks. Water quality of wetlands in Pennsylvania. Poster presented at the 1996 Pennsylvania Academy of Sciences Conf., State College, PA.

 Campbell, D.A., C.A. Cole, and R.P. Brooks. Assessing the performance of created wetlands: A spatial/temporal analysis. Paper presented at the 1996 Landscape Ecology Conference, Galveston, TX.

 Reinhardt, C., C.A. Cole, and R.P. Brooks. Assessing historic wetland seed banks using Cs137: A pilot study. Paper presented at the 1996 Pennsylvania Academy of Sciences Conf., State College, PA.

1995 Brooks, R.P., C.A. Cole, D.H. Wardrop, L. Bishel, and D.J. Prosser. Assessing wetland condition and restoration potential within watersheds using a performance criteria matrix. Society for Ecological Restoration, Seattle, WA.

 Brooks, R.P., D.H. Wardrop, and C.A. Cole. Evaluating and implementing watershed approaches for protecting Pennsylvania's wetlands. Presentation to the U.S. EPA, Region 3, Philadelphia, PA.

 Cole, C.A., and R.P. Brooks. Hydrogeomorphic class, seasonal hydrology, and water quality in wetlands of central Pennsylvania. 16th Annual Conference, Society of Wetland Scientists, Boston, MA.

 Goslee, S.C., R.P. Brooks, and C.A. Cole. Plants as indicators of wetland water source. 16th Annual Conference, Society of Wetland Scientists, Boston, MA.

 Cole, C.A., R.P. Brooks, L.A. Bishel, S. Goslee, D.J. Prosser, and D.H. Wardrop. Assessing watershed approaches for protecting Pennsylvania's wetlands. National symposium on Watershed management and wetland ecosystems. Tampa, FL.

 Brooks, R.P., C.A. Cole, D.H. Wardrop, L. Bishel, and D.J. Prosser. Assessing wetland condition and restoration potential within watersheds. USEPA/NRCS Regional Workshop, Washington, D.C.

 Cole, C.A., R.P. Brooks, L.A. Bishel, S. Goslee, D.J. Prosser, and D.H. Wardrop. Evaluating and implementing watershed approaches for protecting Pennsylvania's wetlands. Conference on Management Strategies for Watersheds, Shippensburg Univ., PA.

1994 Goslee, S., R.P. Brooks, and C.A. Cole. Plant indicators of wetland hydrology. 15th Annual Meeting, Society of Wetland Scientists. Portland, OR.

 Wardrop, D.H., R.P. Brooks, and C.A. Cole. Impact response curves: An approach to assessing cumulative impacts in wetland ecosystems using reference sites. 15th Annual Meeting, Society of Wetland Scientists. Portland, OR.

1992 Cole, C.A. A theoretical framework for use in wetland creation: Odum revisited. INTECOL IV International Wetland Conference: Global wetlands - Old world and new. Columbus, OH.

Cole, C.A. Conflict at Cape Hatteras: Coastal wetland water quality in a resort environment. 13th Ann. Meeting of the Society of Wetland Scientists, New Orleans, LA.

1990 Cole, C.A. Live and let die: The Outer Banks of North Carolina. 2nd International Symposium on Ecotourism, Miami Beach, FL.

 Cole, C.A., J. Kumer, D.A. Manski, and D. Richards. Preliminary observations of human- generated marine debris found on national park beaches. Poster at: The Sixth Conference on Research in the National Parks and Equivalent Reserves. The George Wright Society. El Paso, TX. [Manski presented]

 Cole, C.A. The Outer Banks of North Carolina, natural resources and growth: Big plans for some little islands. Congress on Coastal and Marine Tourism. Honolulu, Hawaii.

1989 Cole, C.A. Surface water quality of a North Carolina barrier island: Cape Hatteras National Seashore. Conference on barrier island ecology of the mid-Atlantic coast. Nags Head, North Carolina.

 Cole, C.A., and F. K. Turner. The waterfowl hunt at the Cape Hatteras National Seashore: 1958-1989. Conference on barrier island ecology of the mid-Atlantic coast. Nags Head, North Carolina.

1986 Cole, C.A. Morphometry, hydrology, and some associated water quality fluctuations of a surface mine wetland complex. Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation. Lexington, KY.

 Cole, C.A. Surface mine wetland hydrology and effects on vegetative productivity and community structure. National Mined Lands Reclamation Conference, St. Louis, MO.

1984 Cole, C.A. Evolution of habitat evaluation: Current problems and some suggestions for change. WILDLIFE 2000: Modeling habitat relationships of terrestrial vertebrates. S. Lake Tahoe, CA. Poster.

1983 Cole, C.A., and R. L. Smith. Habitat suitability indices for monitoring wildlife populations--An evaluation. North American Wildlife and Natural Resources Conference, Kansas City, MO.

Invited Workshop Participant

2004 National symposium on compensatory mitigation and the watershed approach. Washington, D.C. Sponsored by the Environmental Law Institute. One of 42 invited participants.

2001 Stakeholder forum on federal wetlands mitigation, Baltimore, MD. Sponsored by the Environmental Law Institute. One of 53 invited participants.

E+D: Ecology and Design:

1. Coordinator of the 1st Symposium on Ecology and Design. November 1, 2017, Penn State University.
2. Working with Mahan-Rykiel (Baltimore) on dredge fill project.
3. Working with Pittsburgh Park Conservancy on park design and ecological assessment.

Guest Lectures

* Wetland Ecosystems. WFS 209. Wildlife and Fisheries Conservation. F/Sp 2012-2017
* Wetland mitigation. CE 497B. Fall 2014, 2015, 2016

Professional Experience

Book review editor, Landscape Planning/Ecology – Landscape Journal [2010-2013]

Editor, *Bulletin of the Society of Wetland Scientists* / *Wetland Science and Practice* [2001-2014]

Member, Editorial Board and Assoc. Editor- *Environmental Geochemistry and Health* [2006-2010]

Member, Editorial Board and Assoc. Editor- *Environmental Management* [1999-2011]

Member, Editorial Board and Assoc. Editor- *Wetlands Ecology & Management* [2000-2004]

Ad Hoc Journal Referee:

Urban Design International, Ecological Engineering, Environmental Management, International Journal of Surface Mining and Reclamation, Journal of Environmental Quality, Journal of Spatial Hydrology, Wetlands, Wetlands Ecology & Management

Proposal Reviews & Panels:

BP Prudhoe Bay Panel Review of tundra restoration program [2012]

EPA site review for Lake Pontchartrain Research Lab [2006]

National Science Foundation, Michigan Sea Grant, U.S. Environmental Protection Agency, U.S. Department of Agriculture, USC Sea Grant, Great Lakes Fishery Commission, CREES, EPA STAR, Wisconsin Sea Grant

Professional Service:

External tenure review – University of Southern California 2017

External tenure review – University of Wisconsin 2015

External tenure review - Louisiana State University 2005

National/Regional Activities:

Moderator for SWS Annual Meeting session "Wetland Assessment" [2008]

CELA 2007, Eco/sustainability Tour Leader [2007]

Member, SWS Annual Meetings Committee [2007-2009]

PSU liaison, Chesapeake Res. Consortium, Freshwater SAV Partnership; [2004-2006]

Member, SWS Human Diversity Committee [2003-2006]

Member, SWS Publications Committee [2002-2013]

Moderator, SWS Forum on-line (www.sws.org) [2001-2007]

Society of Wetland Scientists Student Scholarship Committee [1998-2001]

Society of Wetland Scientists Service Award Committee [1999]

Member of the regional "A-Team" for evaluating hydrogeomorphic models [1996-2000]

Symposium Organizer and Presenter: INTECOL's V International Wetland Conference, Sept., 1996, Perth, Australia. "Ecological theory and the creation and restoration of wetlands."

Instructor at "Creating Wetlands for Habitat Enhancement and Mitigation", Univ. Wisconsin. 1996

Member of the National Park Service Marine Debris Monitoring Program [1988-1993]

Univ. Georgia/N.C. State Univ. - Co-chair of the symposium entitled "Ecology of Mid-Atlantic Barrier Islands" given in December 1989, and published in 1993.

Southern Illinois University- Chairman of the Special Anniversaries Committee, North Central Section of The Wildlife Society (TWS), 1987 Midwest Fish & Wildlife Conf.

Pennsylvania Activities:

Member, Environmental Center Committee, Bald Eagle Area School District [2009-2010]

Member, Pittsburgh Parks Conservancy, National Advisory Council [2001]

Member, *ad hoc* committee, PA DEP on their Wetlands Net Gain Strategy. [1999-2002]

Member, Nine-Mile-Run Advisory Group (Pittsburgh, PA), [1997-1999]

Member, Spring Creek Watershed Tech. Advisory Comm., Centre Co., Stormwater Mgmt. [1997- 2001]

Chair, Local Coordinating Committee, Spring Creek Watershed Community International Countryside Stewardship Exchange. May-September, 1996.

Chair of Spring Creek Watershed Community, October 1996-May1997.

Spring Creek water quality monitoring network committee. [1997-2000]

Service:

***University:***

Graduate School Committee on advising with STARFISH 2017-18

Strategic Plan Steering Committee; Stewarding Natural Resources Subcomm. 2016-

University-wide Assessment Working Group 2016-17

Special Comm. on Outcomes Assessment & Program Enhancement (co-Chair) 2015-17

Special Senate Committee for the Implementation of LionPATH 2015

Faculty Advisory Committee for Project LionPATH 2014

Graduate Council Joint Curricular Committee (co-chair) 2013-2015, 16f, 17

IUG study group - chair 2012-2014

University Graduate Council 2010-2012, 2017-

Graduate Council – Committee on Programs and Courses (chair) 2011-2012

Graduate Council – Committee on Committees 2010-2012

Graduate Council – Committee on Academic Standards (chair 2012) 2010-2012

Grad Council – Subcomm. New & Revised Programs & Courses (Ch. 2012/13) 2010-2013

Arboretum Plant Materials Committee 2010-

Arboretum Faculty Advisory Committee 2005-2009

Facilities Planning Advisory Board 2008-2011

***College:***

Faculty Council 2012-2016 (chair, ’16)

P&T Committee 2011-16 (chair, ’16), ‘18

"Advancing Scholarship" Working Group 2008-2009

Committee on Creative Accomplishments & Research 2004, 2006-2008

Administrative review committee for Brian Orland 2006

Graduate Curricular Affairs Committee 2008-2014, 16

Agriculture Representative 2004-2007

***Stuckeman School of Architecture & Landscape Architecture:***

SSALA Council 2011-2013, 14-16

Collaborative Design Research Executive Committee 2014-15

***Department:***

E+D: Ecology & Design (director) 2016-

Water Group 2014-16

Faculty/staff awards committee 2012-2013

Department head advisory committee 2012-2013, 2015

Graduate Affairs Committee 2003-

Graduate Program Coordinator 2008-2014, 2016f

Faculty search committee 2008-2009

"D" waiver committee 2004-2007

Bracken Colloquium Planning / Action Committee 2002-2004

***Other PSU Service:***

Ecology Program – candidacy exam committee 2016-

Ecology Program - Admissions Committee 2003-2009

ERM Search Committee (Aquatic Ecologist) 2001

Review Committee for Fox Hollow storm water basin 2000

Development of World Campus Course (WFS 309) 2000

Faculty judge, Graduate Research Exhibition 1998

***Local Service:***

State College Area School Dist. Elementary Math Curricular Review Comm. 2010

Awards

1. Gold Award for “Rain to drain – slow the flow”: Association of Natural Resource Extension Professionals [Authors include – Fetter, Smith, Kyler, Dietrich, Cotrone, Kunsman, Swistock, Cole & Echols] 2016.
2. Administrative Fellow, Penn State Graduate School (2015-2016)
3. Outstanding Reviewer – Ecological Engineering (2015)
4. SWS President’s Service Award (2010) – Editor, Wetland Science & Practice
5. Nominated for a Henry and Lucille Packard Fellowship, PSU College of Arts & Architecture-2007
6. Top downloaded paper for 2002 in Wetlands Ecology and Management (Campbell, Cole, Brooks)
7. Governor's Award for Watershed Stewardship 2001 [Spring Creek Watershed Community and the Water Resources Monitoring Program]
8. Nominated for Ann Cooke Award for volunteer service in Centre County- 1998

Outreach Presentations

* “Wetlands in your world” – I talk to elementary kids at many of the SCASD schools about wetlands. Every year since 2009. Average audience = 75-100 per year.

• Wetlands as special habitats. American Fisheries Society Institute for Teachers, Penn State

 University. June 2002. June 2003 June 2004

• "All I ever need to know about creating a wetland I learned from Humpty Dumpty" Department

 of Civil Engineering, PSU. March 26, 2001

• Wetland Ecology-McCall Dam State Park. 7th Grade Students, Penns Valley HS, May 2000. (N=43)

• Wetlands. Wayne County Envirothon/4-H. March 29, 2000.

• Hydrogeomorphic approach to wetland classification and assessment. PA Association of

 Professional Soil Scientists Annual Meeting. November 1999.

• Wetland Assessment on a Landscape Scale. Center for Watershed Stewardship, Penn State

 University, September 1999.

• Wetlands in the landscape. School of Natural Resources, Ohio State Univ. May 1999.

• Pennsylvania wetlands. Penn State University, ERM Club, April 1999.

• Created wetlands in the landscape. Department of Biology, University of Akron. March 1999.

• Pennsylvania wetlands. State College Rotary, January 1998.

• Wetland functions and (dis)functional created wetlands. Virginia Tech Student Chapter, The

 Wildlife Society, October 1997.

• Wetland functions and (dis)functional created wetlands. Penn State University Ecology Seminar,

 October 1997.

• Wetland hydrology and hydrogeomorphology: Cal. Univ. Of PA, Biology Dept., June 1997.

• Hydrogeomorphology and wetland hydrology: An ecological cascade. Kent State University,

 Biology Dept., March 1997.

• Wetlands Hydrology: PA Dept. Env. Protection, Mill Hall, PA. October 1996.

• The Spring Creek Case Study - (International Countryside Stewardship Exchange)

 Annapolis, MD. September 1996.

• Wetlands: PA Wild Resources Education Workshop, Slippery Rock Univ., June 1996.

• Forestry BMPs and Wetland Identification: Franklin, PA - March 1996.

• Wetland hydrology and hydrogeomorphic class: Dept. Geosciences, PSU. Feb 1996.

• Wetland Plant Materials Workshop: Duncansville, PA -September 1994.

• PA Forest Stewardship Workshop: Dauphin Co. - May 1994.

• Wetlands of Pennsylvania - PA Recreation and Parks Soc. Lancaster, PA. Feb 1994.

• Wetlands and Logging Workshop: Oil City-November 1993.

• PA Forest Stewardship Workshop: Kane - October 1993.

• Marine debris - Institute for Retired Persons, Nova University, Davie, FL. Jan 1993.

• Marine debris - Dept Biology, Florida Atlantic Univ., Boca Raton, FL. Oct 1992.

• NPS-NMFS Marine Debris Program - Ft. Lauderdale Beach Rotary Club. July 1992.

Consulting Experience

• Consultant to local group opposing development on a site with wetlands. Maxatawny, PA. 2006

• Conducted wetland delineation for a proposed golf course - ARM Group. 19996

• Advised UNISYS Corporation on reclamation of a waste site which was also a forested wetland. 1994

• Advised the Allegheny Portage NHS on vegetation/ management of a wetland mitigation site. 1994

• Advised land owners in Delray Beach, Florida on the quality and function of a wetland area. 1991

• Served as a wetlands consultant to Duke Power. 1991

• Served as an expert witness on the effects of beach development on water resources for a group of property owners on Sunset Beach, NC. 1990

Professional Affiliations

Society of Wetland Scientists (Life Member)

Association of State Wetland Managers

Ecological Society of America

Society for Ecological Restoration

Pennsylvania Academy of Science

Natural Areas Association

Professional Honor Societies

Sigma Xi (Full Member)

Phi Kappa Phi

Xi Sigma Pi

Gamma Sigma Delta

Certifications

Professional Wetland Scientist Society of Wetland Scientists 1995-2011

Senior Ecologist Ecological Society of America 2001-

**References:**

Provided upon request