Dr. JAMES BOYD

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POSITIONS:

Currently, Associate Vice President for Research, Senior Fellow, and Thomas Klutznick Chair in Environmental Policy, Resources for the Future.

2010-2022, Director of Social Science and Policy, the National Science Foundation Socio-Environmental Synthesis Center (SESYNC).

2007-2008, Visiting Professor, Stanford University.

2002-2007 Director, Energy and Natural Resources Division, and Senior Fellow, Resources for the Future, Washington, DC.

1997, Visiting Professor, Olin School of Business, Washington University, St. Louis.

1992-2001, Fellow, Resources for the Future.

EDUCATION:

Ph.D., Applied Microeconomics, Wharton Business School, University of Pennsylvania, 1993.

B.A., History, the University of Michigan, 1986.

PRIMARY RESEARCH INTERESTS:

Natural Resource Management, Ecosystem Services, Law and Economics, Environmental Policy, Economics of Regulation.

RESEARCH AND WRITING:

"Effects of Carbon Policies on Disadvantaged Forest Communities in the United States," with Alexandra Thompson and David Wear. 2025. *Agricultural and Resource Economics Review:* 1-28, doi:10.1017/age.2025.10012.

"A Stepwise Process for Actionable Environmental Science Research," with Margaret Palmer. 2025. *Frontiers in Ecology and the Environment*: doi:10.1002/fee.2854.

"Biophysical Measures to Support Analysis and Communication of Existence Values," with Robert Johnston and Paul Ringold. 2023. *International Review of Environmental and Resource Economics*: Vol. 17: No. 2-3, pp 153-230.

"Nature-Based Forestry and Agriculture Solutions." 2022 *Resources Magazine* (Oct 19).

"A Causal Approach to Actionable Research Design." 2022. National Socio-Environmental Synthesis Center. https://www.sesync.org/resources/causal-approach-actionable-research-design

"Valuation of Natural Resources and Ecosystem Services: Economic Methods." 2022. National Socio-Environmental Synthesis Center. https://www.sesync.org/resources/economic-valuation-natural-resources-and-ecosystem-services.

"Linking Measures: The Handshake Between Natural and Social Science Analysis." 2022. National Socio-Environmental Synthesis Center. https://www.sesync.org/resources/linking-measures-handshake-between-natural-and-social-science-analysis

"What Is Actionable Research?" 2022. National Socio-Environmental Synthesis Center. https://www.sesync.org/resources/what-actionable-research

"Federal Climate Policy Toolkit: Land Use, Forestry, and Agriculture," with David Wear. 2021. *Resources Magazine*, Issue 207.

"Private Sector Conservation under the Endangered Species Act: A Return on Investment Perspective," with Rebecca Epanchin-Niell. 2020. *Frontiers in Ecology and the Environment*.

"Accounting for Land in the United States: Integrating Physical Land Cover, Land Use, and Monetary Valuation," with Scott Wentland, Zachary Ancona, Kenneth Bagstad, Julie Hass, Marina Gindelsky, and Jeremy Moulton. 46, 2020. *Ecosystem Services*.

"The IPBES Global Assessment: Pathways to Action," with Mary Ruckleshaus, Stephen Jackson, Harold Mooney, Katharine Jacobs, Karim-Aly Kassam, Mary Arroyo, Andras Baldi, Ann Bartuska, Lucas Joppa, Aniko Kovacs-Hostyanszki, Jill Parsons, Robert Scholes, Jason Shogren, and Zhiyun Ouyang. 2020. *Trends in Ecology and Evolution*.

"Environmental Projects in Urban Areas: Analysis to Support Corps of Engineers Project Planning and Budgeting," with Leonard Shabman. 2019. Resources for the Future Report 19-09.

"The Natural Capital Accounting Opportunity: Let's Really Do the Numbers" (lead author). 2018. *Bioscience*. 68:12, 940-943.

"Understanding the Impacts of Research Synthesis," with Carina Wynborn, Elena Louder, Jerry Harrison, Jensen Montambault, Jasper Montana, Melanie Ryan, Angela Bednarek, Carsten Nesshoever, Emilie Dellecker, Mark Reed, Andrew Pullin, Jonathan Kramer, Adrian Dellecker, Jonathan Hutton. 2018. *Environmental Science and Policy*. 86, 72-84.

Integrating Adaptive Management and Ecosystem Services Concepts to Improve Natural Resource Management, with Rebecca Epanchin-Niell, Molly Macauley, Lynn Scarlett, Carl Shapiro, and Byron Williams. 2018. U.S. Geological Survey Circular 1439. 62 p. U.S. Geological Survey, Reston VA.

"Speeding the Pace: Decisionmaking for Diversion Project Implementation in Louisiana," with Leonard Shabman. 2017. Resources for the Future Report.

"Ecosystem Services Find Their Federal Footing: A History of the 2008 Farm Bill and 2012 Forest Planning Rule." 2017. *Journal of Soil and Water Conservation*, 72:6, 650-655.

"Nitrogen-Induced Terrestrial Eutrophication: Cascading Effects and Impacts on Ecosystem Services," with Chris Clark, Mike Bell, Jana Compton, Eric Davidson, Christine Davis, Mark Fenn, Linda Geiser, Laurence Jones, and Tamara Blett. 2017. *Ecosphere,* 8:7, 1-28.

"So You Want Your Research to be Relevant? Building the Bridge Between Ecosystem Services Research and Practice," with Lydia Olander, Stephen Polasky, James Kagan, Robert Johnston, Lisa Wainger, David Saah, Lynn Maguire, and David Yoskowitz. 2017. *Ecosystem Services*, 26, 170-182.

"Modeling Aesthetics to Support an Ecosystem Services Approach for Natural Resource Management Decision Making, " with Sheryl Law, Pieter Booth, Jane Ma, John Buonogurio, and Jessica Turnley. 2017. *Integrated Environmental Assessment and Management*, 13:5, 926-938.

"Voluntary Conservation: A Return on Investment Framework for the Private Sector," with Rebecca Epanchin-Niell. 2017. *Resources Magazine*. Issue 194.

"Private Sector Conservation Investments under the Endangered Species Act: A Guide to Return on Investment Analysis," with Rebecca Epanchin-Niell. 2017. Resources for the Future Discussion Paper 17-11.

"Science and Federal Environmental Decisions: A Survey of Interactions, Successes, and Difficulties," with Jonathan Kramer. 2017. Resources for the Future Discussion Paper 17-02.

"Ecosystem Services Indicators: Improving the Linkage Between Biophysical and Economic Analyses," with Paul Ringold, Alan Krupnick, Robert Johnston, Matt Weber, and Kim Hall. 2016. *International Review of Environmental and Resource Economics*. Vol. 8: No. 3–4, 359-443.

"A Decision Support Tool for Assessing Tradeoffs in Ecosystem Services at Department of Defense Installations," with Pieter Booth, Sheryl Law, Jane Ma, and Jessica Turnley, *under review*.

"Government: Plan for Ecosystem Services," with Lucas Joppa, Clifford Duke, Stephanie Hampton, Stephen Jackson, Katherine Jacobs, Karim-Aly Kassam, Harold Mooney, Laura Ogden, Mary Ruckleshaus, and Jason Shogren, *Science*, vol. 351, Issue 6277: 1037, 2016.

"Practices for Facilitating Interdisciplinary Synthetic Research: the National Socio-Environmental Synthesis Center (SESYNC)," with Margaret Palmer, Jonathan Kramer, and David Hawthorne, *Current Opinion in Environmental Sustainability*, 19:111-122, 2016.

"Trends in Environmental Desire," with Carolyn Kousky, *Resources Magazine*, 191, 26-33, 2016.

"Best Practices for Integrating Ecosystem Services into Federal Decision Making," Durham: National Ecosystem Services Partnership, Duke University. doi:10.13016/M2CH07. With Lydia Olander, Robert J. Johnston, Heather Tallis, Jimmy Kagan, Lynn Maguire, Steve Polasky, Dean Urban, Lisa Wainger, and Margaret Palmer, 2015.

"Are We Becoming More Environmental? Reflections on Trends in Environmental Desire." An eleven-part series, *Common Resources, the RFF Blog,* with Carolyn Kousky, 2015.

"Ecosystem Services and Resource Management: Institutional Issues, Challenges, and Opportunities in the Public Sector," *Ecological Economics*, 115, pp. 3-10, 2015, with Lynn Scarlett.

"Best Available Science and Imperiled Species Conservation: Challenges, Opportunities, and Partnerships," Resources for the Future Discussion Paper 15-38, with Rebecca Epanchin-Niell, 2015.

"Gaps In The Capacity To Describe Stream Ecosystem Features That Matter To People," under review at *Ecological Indicators*, with Paul Ringold, Matt Weber, and Alan Herlihy, 2015.

"Conservation Planning: A Review of Return on Investment Analysis," *Review of Environmental Economics and Policy*, with Rebecca Epanchin-Niell and Juha Siikamaki, 9(1), pp. 23-42, 2015.

"Implementation of EcoAIM – a Multi-Objective Decision Support Tool for Ecosystem Services at Department of Defense Installations," with Pieter Booth, Sheryl Law, Jane Ma, Jessica Turnley, U.S. Department of Defense, Environmental Research and Development Program Technical Report (RC-201115), 2014.

"Integrating Ecosystem Services Into Federal Resource Management," in *Federal Resource Management and Ecosystem Services Guidebook*. Durham: National Ecosystem Services Partnership, Duke University, with Lydia Olander and Emily Schieffer, 2014.

"Integrating Ecological and Social Measures: Bridging Indicators," in *Federal Resource Management and Ecosystem Services Guidebook*. Durham: National Ecosystem Services Partnership, Duke University, with Lisa Wainger, 2014.

"Best Available Science and Imperiled Species Conservation: Challenges, Opportunities, and Partnerships," Resources for the Future Discussion Paper 14-44, 2014.

"Measuring the Return on Program-Level Conservation Investments," Resources for the Future Discussion Paper 14-12, 2014.

"Ecosystem Services Evaluation," in *Encyclopedia of Natural Resources:Land*, Taylor and Francis, New York, 150-155, 2014.

"Decision Support: Connecting Science, Risk Perception, and Decisions," contributing author, R. Moss et al., Chapter 26, Third National Climate Assessment Report, US Global Change Research Program, 2014.

"Business Motivations for Conservation," *Resources Magazine*, 185, 18-25, 2014.

"Using Ecological Production Theory to Define and Select Environmental Commodities for Nonmarket Valuation," *Agricultural and Resource Economics Review*, 42(1), 2013, 218-249, with Alan Krupnick.

"The Limits to Ingenuity: Innovation as a Response to Ecological Loss," *Resources Magazine*, 182, 41-45, 2013.

"What Data Should We Collect? A Framework for Identifying Indicators of Ecosystem Contributions to Human Wellbeing," Paul Ringold, James Boyd, Dixon Landers, and Matt Weber, *Frontiers in Ecology and the Environment*, doi:10.1890/110156, 2013.

"Landscape-Scale Conservation and Ecosystem Services: Leveraging Federal Policies," in *The Laws of Nature: Reflections on the Evolution of Ecosystem Management Law and Policy*, with Lynn Scarlett, Kalyani Robbins ed., University of Akron Press, 2013.

"The Limits to Ingenuity: Where Malthus May Have Had it Right," Common Resources blog post, June 5, 2012.

"Economic Valuation, Ecosystem Services, and Conservation Strategy," The Gordon and Betty Moore Foundation, 2012, available at http://www.moore.org/ecosystemservicesseminar.html.

"Contributions of Cultural Services to the Ecosystem Services Agenda," *Proceedings of the National Academy of Sciences*, Terry Daniel, et al, 2012.

"Sustainability Paranoia Rears Its Head," Common Resources blog post, June 5, 2012.

"The Architecture and Measurement of an Ecosystem Services Index," *Sustainability* 4(4), Spencer Banzhaf and James Boyd, 2012.

"Measuring Conservation's Return on Investment," *Resources*, 179, 2012.

"The Risk of Ecosystem Service Losses: Ecological Hedging Strategies," *Resources*, Summer 2011.

Report from the Workshop on Indicators of Final Ecosystem Services for Wetlands and Estuaries. Corvallis, OR: US EPA. EPA/600/X-11/014, with Paul Ringold, Amanda Nahlik, and David Bernard, 2011. (www.epa.gov/nheerl/arm/streameco/index.html)

"Valuing Ecological Systems and Services," Robert Costanza, Ida Kubiszewski, David Ervin, Randy Bluffstone, James Boyd, Stephen Polasky, Vivek Shandas, Alan Yeakley. *F1000 Biology Reports,* 3:14, 2011.

"Ecosystem Good and Service Co-Effects of Terrestrial Carbon Sequestration: Implications for the US Geological Survey's Land Carbon Methodology," Resources for the Future Discussion Paper 11-22, May 2011, with David S. Brookshire.

"Ecosystem Services: Quantification, Policy Applications, and Current Federal Capabilities," Resources for the Future Discussion Paper 11-13, March 2011, with Lynn Scarlett.

"Attributing Benefits to Voluntary Programs in EPA's Office of Resource Conservation and Recovery: Challenges and Options, Resources for the Future Discussion Paper 11-09, March 2011, with Cynthia Manson.

"Counting Non-Market, Ecological Public Goods: The Elements of a Welfare Significant Ecological Quantity Index," in *Is Economic Growth Sustainable?* G. Heal ed., International Economics Association Series, Palgrave Macmillan, 2010.

"How Do You Put a Price on Marine Oil Pollution Damages?" *Resources*, Summer 2010.

"Ecosystem Services and Climate Adaptation," Resources for the Future Issue Brief, 10-16, July 2010.

"Lost Ecosystem Services as a Measure of Marine Oil Pollution Damages," Resources for the Future Discussion Paper, May 2010.

"Insights from Economics for Ecosystem-Based Management," with Lisa Wainger, in *Ecosystem-Based Management for the Oceans*, Editors: Karen L. McLeod and Heather M. Leslie, Island Press, 2009.

Report from the Workshop on Indicators of Final Ecosystem Services for Streams. Corvallis, OR: US EPA. EPA/600/R-09/137, with Paul Ringold, Dixon Landers, and Matthew Weber, 2009. (www.epa.gov/nheerl/arm/streameco/index.html)

"Box Cars and Breadlines Are No Way to Measure an Economy: A Plea for Environmental Accounts," *Resources for the Future Policy Commentary*, January 19, 2009.

"The Definition and Choice of Environmental Commodities for Nonmarket Valuation," Resources for the Future Research Paper 09-35, with Alan Krupnick, 2009.

"Location, Location, Location: The Geography of Ecosystem Services," *Resources*, Fall 2008.

"Don't Measure, Don't Manage: GDP and the Missing Economy of Nature," Resources for the Future Issue Brief, May 2008.

"What are Ecosystem Services?" *Ecological Economics*, with Spencer Banzhaf, 2007.

"Trading as a U.S. Water Quality Management Tool: Prospects for a Market Alternative," with Leonard Shabman and Kurt Stephenson, in *Ecological Economics of Sustainable Watershed Management,* Jon Erickson, Frank Messner, and Irene Ring eds., Elsevier, 2007.

"The Endpoint Problem," *Resources*, 2007.

"Procurement of Water's Ecosystem Services: An Economic and Ecological Perspective," Precious, Worthless, or Immeasurable: The Value and Ethic of Water, Texas Tech School of Law, Center for Water Law and Policy, Texas Tech University, 35-50, 2006.

"The Nonmarket Benefits of Nature: What Should Be Counted in Green GDP?" *Ecological Economics*, 2006.

"Taxing Nutrient Loads," 61 *Journal of Soil and Water Conservation*, with Sandra Hoffman and Eleanor McCormick, 2006.

"Political Economy and the Efficiency of Compensation for Takings," 24 *Contemporary Economic Policy*, with Timothy Brennan, 2006.

CLEANER and NSF's Environmental Observatories, multiple authors, National Research Council, 2006.

"Ecosystem Services and Government Accountability: The Need for a New Way of Judging Nature's Value," *Resources*, 2005, with Spencer Banzhaf.

"Taxonomy of Trading Programs: Concepts and Applications to TMDLs." In *TMDLs: Approaches and Challenges*, Tamim Younos, ed., PennPress, 2005, with Kurt Stephenson and Leonard Shabman.

"Bonding Requirements for Coal and Hardrock Mines in The U.S.," in *International and Comparative Mineral Law and Policy: Trends and Prospects*, Elizabeth Bastida, Thomas Wälde and Janeth Warden eds., Kluwer Law, 2005.

"Combating Ignorance About U.S. Water Quality," in *New Approaches on Energy and the Environment*, Richard Morgenstern and Paul Portney, eds., Resources for the Future, 2004, with Leonard Shabman.

"Global Compensation for Oil Pollution Damages: The Innovations of the American Oil Pollution Act," Resources for the Future Discussion Paper 04-36, 2004.

"What's Nature Worth? Using Indicators to Open the Black Box of Ecological Valuation," *Resources*, 2004.

"Pushing the Political System for Change: An Interview with Bill McKibben," *Resources*, 2003.

"Water Pollution Taxes: A Good Idea Doomed to Failure?" 3(1) *Public Finance and Management*, 2003.

"Trading Cases: Protecting the Environment and Natural Resources with Market-Based Policies," 37 *Environmental Science and Technology*, 2003, with Dallas Burtraw, Alan Krupnick, Virginia McConnell, Richard G. Newell, Karen Palmer, James N. Sanchirico, and Margaret Walls.

"Fly By Night or Face the Music? Premature Dissolution and the Desirability of Extended Liability," 5 *American Law and Economics Review*, 2003, with Dan Ingberman.

"A Market-Based Analysis of Financial Assurance Issues Associated with U.S. Natural Resource Damage Liability," in *Tort and Insurance Law, vol. 5, Deterrence, Insurability and Compensation in Environmental Liability, Future Developments in the European Union*, Michael Faure ed., Springer 2003.

"The Effects of Environmental Liability on Industrial Real Estate Development" (reprinted from the *Journal of Real Estate Finance and Economics*, 1996, with Winston Harrington and Molly Macauley) and "Environmental Liability Reform and Privatization in Central

and Eastern Europe" (reprinted from the *European Journal of Law and Economics*, 1996) in *Economics and Liability for Environmental Problems*, Kathleen Segerson ed., Ashgate, 2002.

"Landscape Indicators of Ecosystem Service Benefits," 84 *American Journal of Agricultural Economics*, 2002, with Lisa Wainger.

"Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?" 20 *Research in Law and Economics*, 2002.

"The Economics of Tailored Regulation: Will Voluntary Site-Specific Performance Standards Necessarily Improve Welfare?," 69 *Southern Economic Journal*, 2002, with Allen Blackman.

"Measuring Ecosystem Service Benefits for Wetland Mitigation," *National Wetlands Newsletter*, November-December 2002, with Lisa Wainger.

Book review, Compensating for Wetland Losses Under the Clean Water Act, *Environment*, November 2002.

"Show Me the Money: Environmental Regulation Demands More, Not Less, Financial Assurance," *Resources*, 2001.

"Compensation for Lost Ecosystem Services: The Need for Benefit-Based Transfer Ratios and Restoration Criteria," 20 *Stanford Environmental Law Journal*, 2001, with Dennis King and Lisa Wainger.

"Wetland Value Indicators for Scoring Mitigation Trades," 20 *Stanford Environmental Law Journal*, 2001, with Lisa Wainger, Dennis King, and James Salzman.

"The Vertical Extension of Liability Through Chains of Ownership, Contract, and Supply," in Anthony Heyes ed., *The Law and Economics of the Environment*, Edward Elgar, 2001, with Daniel Ingberman.

"The Barriers to Corporate Pollution Prevention: An Analysis of Three Cases," in Scott Farrow and Paul Fischbeck, eds., *Improving Regulation: Cases in Environment, Health, and Safety*, Resources for the Future, 2001.

"Corporate Evaluation of Pollution Prevention Opportunities," in Jurgen von Hagen and John Maxwell eds., *Empirical Studies of Environmental Policies in Europe*, Kluwer, 2000.

"The Competitive Implications of Facility-Specific Environmental Agreements: The Intel Corporation and Project XL," in E. Petrakis, et al, eds., *Environmental Regulation and Market Power: Competition, Time Consistency, and International Trade,* Edward Elgar, 2000, with Janice Mazurek, Alan Krupnick, and Allen Blackman.

"The New Face of the Clean Water Act: A Critical Review of the EPA's New TMDL Rules," *The Duke Environmental Law and Policy Forum*, Fall 2000.

"The Law and Economics of Habitat Conservation: Lessons From an Analysis of Easement Acquisitions," 19 *Stanford Environmental Law Journal*, 2000, with Kathryn Caballero and R. David Simpson.

"A Market-Based Analysis of Financial Assurance Issues Associated with U.S. Natural Resource Damage Liability," annex to European Commission White Paper on Environmental Liability, 2000.

"Unleashing the Clean Water Act: The Promise and Challenge of the TMDL Approach to Water Quality," *Resources*, 2000.

"Carving Out Some Space: A Guide to Land Preservation Strategies," *Resources*, 1999, with Kathryn Caballero and R. David Simpson.

"Economics and Biodiversity Conservation Options: An Argument for Continued Experimentation and Measured Expectations," 240 *Science of the Total Environment* 1999, with R. David Simpson.

"Do Punitive Damages Promote Deterrence?," 19 *International Review of Law and Economics,* 1999, with Daniel Ingberman.

"The 'Regulatory Compact' and Implicit Contracts: Should Stranded Costs be Recoverable?," 19 *The Energy Journal*, 1998.

Searching for the Profit in Pollution Prevention: Case Studies in the Corporate Evaluation of Environmental Opportunities, U.S. Environmental Protection Agency: Washington, DC, EPA 742-R-98-005, April 1998.

"Intel's Project XL Agreement: Who Benefits?" *Semiconductor Fabtech*, Eighth Edition, 1998, with Alan Krupnick and Janice Mazurek.

"The Pollution Prevention Puzzle: Which Policies Will Unlock the Profits?," *Resources*, 1998.

"'Green Money' In the Bank: Firm Responses to Environmental Financial Responsibility Rules", 18 *Managerial and Decision Economics*, 1997.

"The Search for Deep Pockets: Is 'Extended Liability' Expensive Liability?," 13 *Journal of Law, Economics, and Organization*, 1997, with Daniel Ingberman.

"Should 'Relative Safety' be a Test of Product Liability?," 26 *Journal of Legal Studies*, 1997, with Daniel Ingberman.

"Retroactive Liability or the Public Purse?," 11 *Journal of Regulatory Economics*, 1997, with Howard Kunreuther.

"Stranded Costs, Takings, and the Law and Economics of Implicit Contracts," 11 *Journal of Regulatory Economics*, 1997, with Timothy Brennan.

"Environmental Liability Reform and Privatization in Central and Eastern Europe," 3 *European Journal of Law and Economics*, 1996.

"The Polluter Pays Principle: Should Liability Be Extended When the Polluter Cannot Pay?", 21 *The Geneva Papers on Risk and Insurance*, 1996, with Daniel Ingberman.

"The Effects of Environmental Liability on Industrial Real Estate Development," 12 *Journal of Real Estate Finance and Economics*, 1996, with Winston Harrington and Molly Macauley.

"Non-Compensatory Damages and Potential Insolvency," 23 *Journal of Legal Studies*, 1994, with Daniel Ingberman.

"Risk, Liability, and Monopoly," 1 *International Journal of the Economics of Business* 3, 1994.

"The Allocation of Environmental Liabilities in Central and Eastern Europe," in Michael Toman, *Pollution Abatement Strategies in Central and Eastern Europe*, Resources for the Future, 1994.

"La Ripartizione Delle Responsabilita Ambientali Nell'Europa Centrorientale," *Energia*, 2, 1994, p. 42-47.

"The Impact of Environmental Liability on Industrial Real Estate Development," *Resources*, 1994, with Molly Macauley.

"Optimal New-Product Pricing in Regulated Industries," *Journal of Regulatory Economics*, 1:4, 1989, with Gerald Faulhaber.

HONORS, AWARDS, PUBLIC SERVICE:

Member, Chief of Engineers Environmental Advisory Board, Army Corps of Engineers.

Member, Clean Air Scientific Advisory Committee, Secondary National Ambient Air Quality Standards (NAAQS) Review Panel for Oxides of Nitrogen and Sulfur.

Member, Expert Panel on Mississippi River Diversion Planning and Implementation, Louisiana Coastal Protection and Restoration Authority, Baton Rouge, LA.

Member, Policy and Technical Experts Committee, Wealth Accounting and Valuation of Ecosystem Services (WAVES) initiative, the World Bank.

Member, Advisory Council, Center for the Blue Economy, the Monterrey Institute.

Member, Science Advisory Committee, Ecological Society of America.

Research Associate, Environment for Development Program, University of Gothenburg.

Member, Advisory Committee, Conservation Strategy Fund.

Member, Scientific and Technical Advisory Committee, American Rivers.

Steering Group, National Ecosystem Services Partnership (NESP).

US EPA, Geologic Sequestration Financial Responsibility Regulatory Guidance Expert Review Panel, 2009-2010

Tahoe Water Quality Crediting and Trading Project Advisory Committee, 2008.

Member, U.S. EPA Science Advisory Board, Pollution Prevention Program Measures panel, Environmental Engineering Committee, 2008.

Member, U.S. EPA Science Advisory Board, Ecological Processes and Effects Committee, Ecological Research Program Multi-Year Plan Review, 2008.

Member, U.S. EPA Science Advisory Board, Committee on Valuing the Protection of Ecological Systems and Services, 2003-2007.

Member, Program Committee, Wildlife Habitat Policy Research Program, Doris Duke Charitable Foundation, 2006-2007.

Member, National Research Council, Committee on the Collaborative Large-Scale Engineering Analysis Network for Environmental Research (CLEANER), 2005.

Member, U.S. EPA Superfund Benefits Analysis Advisory Panel, 2005.

Member, U.S. Fish & Wildlife Service, Fisheries Program Evaluation Team, 2004.

Member, U.S. EPA Science Advisory Board, Panel to Examine Benefits, Costs, & Impacts to the Underground Storage Tanks (UST) and Resource Conservation Recovery Act (RCRA) Subtitle C Program, 2002.

MBA "Teacher of the Year," the Reid Award, Olin Business School, Washington University, St. Louis, 1997.

Paul Harris Fellow, Rotary International, 2003.

TEACHING POSITIONS:

Lokey Visiting Professor of Human Biology, Stanford University, 2007-2008.

Visiting Professor, Business Strategy in the Legal and Regulatory Environment, John M. Olin School of Business, Washington University, St. Louis, 1997.

Duke University, Washington Summer Program, Environmental Policy Seminar, 1994, 1995.

Lecturer in Managerial Economics and Public Policy, the Wharton Business School, Business in the Political Environment (Business and Regulatory Economics) University of Pennsylvania, Spring 1991, Spring 1992.

Math and Microeconomics, Dept. of City and Regional Planning, Univ. of Pennsylvania, Summers 1990, 1991.

SAMPLE CONSULTING ACTIVITIES:

"Attributing Benefits to Voluntary Environmental Programs: Challenges and Options," US EPA Office of Resource Conservation and Recovery (Industrial Economics), 2009-2010.

"Assessing the Market Impacts and Benefits of RCRA Financial Assurance," US EPA Office of Solid Waste and Emergency Response (Industrial Economics Inc.), 2005.

"Indicators of Environmental Benefits," U.S. Air Force (Booz-Allen-Hamilton), 2005.

"A Market-Based Analysis of the Financial Assurance Issues of Environmental Liability," European Commission, Brussels, 2000.

"Environmental Liability, Regulation, and Management: Selected Topics," United States Information Agency, India, 1999.

"Collaborative Public-Private Approaches to Improved Environmental Management," The World Bank, Economic Development Institute, 1998.

"A Proposed Remediation Framework for Romanian Environmental Cleanup Law," The Harvard Institute for International Development, Romania, 1998.

"Privatization and Environmental Liability: A Training Program for Southern Latin America," The World Bank, Economic Development Institute, 1995.

"Privatization and Environmental Liability Reform," The Harvard Institute for International Development, Kazakhstan, 1995.

REFEREE:

The Journal of Law, Economics, and Organization; The Journal of Legal Studies, Proceedings of the National Academy of Sciences, The Journal of Environmental Economics and Management; Journal of Public Economics; Journal of Regulatory Economics, International Review of Law and Economics; Environmental Research Letters; Choices; Agricultural and Resource Economics Review; Ecology and Evolution; The Energy Journal; Environment and Resource Economics; Journal of Policy Analysis and Management; Journal of Industrial Ecology; Law and Policy; American Journal of Agricultural Economics; Ecological Economics; Bioscience; International Review of Environmental and Resource Economics; Ecology and Evolution; Environmental Research Letters.