## Richard D. Horan

October 2023

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| Department of Agricultural, Food, and Resource Economics  Michigan State University  East Lansing, MI 48824-1039 | Phone: (517) 355-1301  FAX: (517) 432-1800  E-mail: |

**Research Interests**

Conservation of species and ecosystems, invasive species, infectious disease in wildlife, co-evolution of economic and ecological systems, agri-environmental pollution

# Education

**Ph.D. Agricultural Economics,** 1997

The Pennsylvania State University, University Park, PA

**M.A. Economics,** 1995

The Pennsylvania State University, University Park, PA

**B.S. Business Administration** (*Major: Economics*)**,** 1993

Appalachian State University, Boone,NC

**B.S. Mathematics** (*Minor: Statistics*),1993

Appalachian State University, Boone, NC

**Experience**

**Michigan State University**

Professor (2009-present), Associate Chair and Director of Graduate Studies (2016-2017), Associate Professor (2004-2009), Assistant Professor (2000-2004), Department of Agricultural, Food, and Resource Economics

**Tilburg University, The Netherlands**

Visiting Scholar, Center for Economic Research (CentER), June 2001.

**Economic Research Service, USDA**

Economist (GS-13), Resource and Environmental Policy Branch, Resource Economics Division, 1997 - 2000

**The Pennsylvania State University**

Research Assistant*,* Department of Agricultural Economics and Rural Sociology, 1995-1997

Instructor, Department of Continuing & Distance Education, 1994 - 1995

Graduate Assistant, Department of Economics, 1993 – 1995

**Distinctions and Awards**

**University Awards**

William J. Beal Outstanding Faculty Award, Michigan State University, 2014.

**Editorial Appointments**

Managing Editor, *Resource and Energy Economics*, 2011-2014

Editorial Board, *International Review of Environmental and Resource Economics*, 2010-

2012

Associate Editor, *American Journal of Agricultural Economics*, 2008-2010.

Editorial Board, *Resource and Energy Economics*, 2006-2016

Editorial Board and Associate Editor, *Natural Resource Modeling*, 2007-2008

Associate Editor: *Encyclopedia of Energy, Natural Resource, and Environmental Economics*, Elsevier.

**Awards from Professional Societies**

*2012 American Water Resources Association’s Boggess Award for best paper published in the Journal of the American Water Resources Association in 2011.*

Horan, R.D. and J.S. Shortle (2011). “Economic and Ecological Rules for Water Quality Trading” ***Journal of the American Water Resources Association*** 47:59-69.

*One of the “Top 20 Most-cited articles during the period 2005-2009”, Journal of Economic Behavior and Organization:*

Horan, R.D., E.H. Bulte, and J.F. Shogren (2005), “How Trade Saved Humanity from Biological Exclusion: An Economic Theory of Neanderthal Extinction”. ***Journal of Economic Behavior and Organization***, 58: 1-29.

*Best AJAE Article of 2005, Honorable Mention (awarded by the American Agricultural Economics Association)*:

Horan, R.D. and C.A. Wolf (2005), “The Economics of Managing Infectious Wildlife Disease.” ***American Journal of Agricultural Economics***, 87: 537-551*.*

*Outstanding Article of 2004 (awarded by the Northeast Agricultural and Resource Economics Association):*

Horan, R.D., J.S. Shortle, and D.G. Abler (2004), "The Coordination and Design of Point-Nonpoint Trading Programs and Agri-Environmental Policies". ***Agricultural and Resource Economics Review***, 33(1): 61-78.

**Recognition by Peers**

Hilmer and Hilmer (*American Journal of Agricultural Economics* 89(2007): 162-175, Appendix 2) recognize my publication record as being among the top 2% of all (1,537) students to have graduated from the top 22 Agricultural Economics departments between 1987 and 2000, taking into account both annual publication rates and journal quality.

**Recognition by Popular Press**

Results of my research have been reported in:

• BusinessWeek (June 29, 2023). <https://www.bloomberg.com/features/2023-rhino-poaching/>

• *Fortune.com*. (April 11, 2022). <https://fortune.com/2022/04/11/biden-administration-covid-infrastructure-prevent-another-pandemic-health-politics-economy/>

* *The Mercury* (online January 23, 2013; <http://www.iol.co.za/mercury/some-may-want-rhinos-to-die-out-1.1457219#.US5BizdZOIR>)

• Pretoria News (online January 23, 2013; <http://www.iol.co.za/pretoria-news/profiteers-may-want-rhino-to-go-extinct-1.1457109#.US5CFDdZOIQ>)

• *The Economist* (feature article mentioned on the issue’s cover) (April 9-15, 2005, p.67; December 7, 2006, p.93)

• *Forbes* (May 9, 2005, p.34)

• *Foreign Policy* (July/August 2005, p.21)

• *New Scientist* (April 1, 2005, NewScientist.com)

• *The Chronicle of Higher Education* (4/5/05;

chronicle.com/prm/daily/2005/04/2005040501j.htm)

• *London Times* (April 25, 2005; www.timesonline.co.uk)

• *Helsingin Sanomat* (*Helsinki Gazette*) (April 5, 2005, p.D6)

• Australian Broadcasting Corp. news online (June 18, 2003;

abc.net.au/science/news).

• Beinhocker, E.D., *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*, Harvard Business School Press, 2006. *One of Amazon’s “Top 10 Business Books of 2006”.*

**Student Recognition**

Research supervisor for the winner of the *2012 Best Ph.D. Dissertation, Department of Agricultural, Food and Resource Economics, MSU:*

Melstrom, R.T. (2012), *Three Essays in Resource Economics: Protecting Non-Use Values through Ecosystem Management and Estimating Recreational Demand To Determine Use Values,* Ph.D. Dissertation, Dept. of Agricultural, Food and Resource Economics, MSU

Major professor and research supervisor for the winner of the 2008 *Best PhD Dissertation, Honorable Mention, Agricultural and Applied Economics Association, and 2008* *Best PhD Dissertation, Dept. of Agricultural Economics, MSU:*

Gramig, Benjamin M. (2008), *Essays on the Economics of Livestock Disease Management: On-Farm Biosecurity Adoption, Asymmetric Information in Policy Design, and Decentralized Bioeconomic Dynamics*, Ph.D. Dissertation, Dept. of Agricultural Economics, MSU

Major professor for the winner of the 2007 *Best PhD Dissertation, Honorable Mention, American Agricultural Economics Association, and* *2007 Best Ph.D. Dissertation, Dept. of Agricultural Economics, MSU (note: Scott Swinton was her committee chair):*

Zhang, W. (2007), *Optimal Pest Management in the Presence of Natural Pest Control Services*, Ph.D. Dissertation, Dept. of Agricultural Economics, MSU

Major professor and research supervisor for the winner of the *2005 Best M.S. Thesis, Department of Agricultural Economics, MSU:*

Fenichel, E.P. (2005), *Models of Wildlife Disease Management: An Analysis of Ecological Thresholds, Economic Tradeoffs, and Targetablity*, M.S. Thesis., Dept. of Agricultural Economics, MSU

**Other**

*USDA Certificate of Merit,* for outstanding initiative and contributions to the understanding of the economics of nonpoint source pollution management, US Department of Agriculture, 1999.

*Performance Awards*, for outstanding research and initiative

Economic Research Service, 1997 (1 award), 1998 (2 awards), 1999 (1 award).

*Will Mason Award* for best graduate student paper

Department of Economics, The Pennsylvania State University, 1995

*Chancellor’s Scholarship* **-** Full academic scholarship, Appalachian State University, 1989-1993.

**Research**

### Publications and Presentations

### see separate list starting on page 9

**Google Scholar Citation Data: Citations: 5311**

**h-index: 38**

**i10-index: 76**

### Funded Research Projects

A Bioeconomic Approach To Managing And Valuing Spatial Wildlife-Livestock Disease Risks (2020-2023), PI. funded by the National Institute for Food and Agriculture (NIFA), USDA, $499,966.

“Using Markets to Coordinate the Provision of Multiple Agri-Environmental Services” (2017-2020), Co-PI (with Carson Reeling and Robert Shupp), funded by the National Institute for Food and Agriculture (NIFA), USDA, $499,956.

“Risks of Animal and Plant Infectious Diseases Through Trade (RAPID TRADE)”, (2014-2018), Co-PI (Charles Perrings, Arizona State, Lead PI), funded by the National Science Foundation (NSF), $149,966.

“Modeling Anthropogenic Effects in the Spread of Infectious Diseases” (2011-2015), Co-PI (Charles Perrings, Arizona State, Lead PI), funded by the National Institutes of Health (NIH), $129,188.

“Correcting Market Failures In The Spread Of Livestock And Wildlife Diseases” (2011-2015), Co-PI (with Christopher Wolf), funded by the National Institute for Food and Agriculture (NIFA), USDA, $498,281.

”Cost Benefit Analysis of the U.S. TB Eradication Program,” (2007-2008), collaborator (with Christopher Wolf, PI), cooperative agreement funded by Animal and Plant Health Inspection Service (APHIS), USDA, $150,000.

“Bioeconomics of Managing Multi-Host Diseases” (2006-09), Co-PI (with Christopher Wolf), cooperative agreement funded by the Economic Research Service, USDA, $117,000.

“Economic Summit on Lake Michigan Invasive Species” (2007), Co-PI (with Frank Lupi), funded by the Great Lakes Fisheries Trust, $19,691.

“Environmental and Resource Economics and Policy: Economics and Policy of Environmental and Natural Resource Restoration” (2006-08), Co-PI (with Frank Lupi and Michael Kaplowitz), Michigan State University Environmental Science and Policy Program, $77,916.

“Bioeconomics of Managing Pathogens in Multi-Host, Livestock-Wildlife Systems” (2006-09), Co-PI (with Christopher Wolf), National Research Initiative Competitive Grants Program, U.S. Department of Agriculture, $231,886.

“The Economics of Managing Infectious Wildlife Diseases when Livestock are at Risk” (2003-06), Co-PI (with Christopher Wolf), cooperative agreement funded by the Economic Research Service, USDA, $129,000.

“The Economics of Policy Options for Controlling the Introduction and Spread of Aquatic Nuisance Species in the Great Lakes” (2001-03), Co-PI (with Frank Lupi), Funded by Michigan Sea Grant College Program (NOAA), $86,039.

“The Economics of Green Payments to Reduce Agricultural Nonpoint Source Pollution” (2001-03), Principal Investigator, National Research Initiative Competitive Grants Program, U.S. Department of Agriculture, $105,000.

**Funded Working Groups**

“Linking biodiversity and ecosystem services: From expert opinion to prediction and application” (2013 – 2014).National Socio-Environmental Synthesis Center (SESYNC). Funded by the National Science Foundation.

“Working Group for Synthesizing and Predicting Infectious Disease while Accounting for Endogenous Risk (SPIDER)” (2009 – 2011), Co-organizer (with Eli Fenichel, Charles Perrings, Graham Hickling) of a working group of economists, mathematicians, and epidemiologists. Support was provided to hold 2-3 meetings per year at the National Institute for Mathematical and Biological Synthesis (University of Tennessee). Funded by the National Science Foundation.

**Teaching**

**Michigan State University**

ESA/EEP 460, Natural Resource Economics (2008 - 2015)

EEP 320, Environmental Economics (2001-2007)

AFRE 891, Introduction to Advanced Microeconomic Theory (2016-2022)

AFRE 925, Advanced Natural Resource Economics (2001, 2002, 2005, 2007, 2009-2011; 2013; 2015-2016; 2018-2022)

AFRE 900A, Applied Microeconomics I (2013-2014; co-taught, 20% responsibility)

AFRE 900B, Applied Microeconomics II (2011,-2012; co-taught, 20% responsibility)

AEC 829, Economics of Environmental Resources (2001; co-taught, 25% responsibility)

AEC 930, Dynamic Models in Agricultural and Resource Economics (2001; co-taught, 50% responsibility)

**The Pennsylvania State University**

Econ 002, Principles of Microeconomics (Distance Learning, 1994-1995).

**Service and Committee Work**

**Service to the Profession**

Editorial Service: see page 2

Referee for the following journals:

*American Economic Review, Journal of Environmental Economics and Management, American Journal of Agricultural Economics, Environmental and Resource Economics, Journal of Economic Growth, Environment and Development Economics, Journal of Agricultural and Resource Economics, Journal of Political Economic Theory, Agricultural and Resource Economics Review, Journal of the American Water Resources Association, Journal of Wildlife Management, Ecological Economics, Natural Resource Modeling, Journal of Regulatory Economics, European Journal of Agricultural Economics, Resource and Energy Economics, Environmental Conservation, Choices*

Reviewer for the following publishers:

Cambridge University Press, McGraw-Hill, Pearson, Princeton University Press, Elsevier, South-Western

Reviewer for the following competitive grant programs:

Great Lakes Fishery Commission, National Science Foundation, Social Science and Humanities Research Council of Canada, The Leverhulme Trust (the largest source of funding of academic research without respect to discipline in the UK), USDA-CSREES, T-STAR (Tropical and Subtropical Agriculture Research), USDA-Economic Research Service, Program of Research on Invasive Species (PREISM), USDA-National Research Initiative Competitive Grants Program, United States-Israel Binational Agricultural Research and Development Fund (BARD), USDA-CSREES, Section 404, Integrated Research, Education, and Extension Program: Water Quality

Reviewer for selected papers and posters for the following associations:

American Agricultural Economics Association, Northeast Agricultural and Resource Economics Association

Co-organizer for the following sessions at the AAEA meetings:

“Integrating Pollution Management Through Markets: Trading Environmental Impacts Across Sources, Pollutants and Time”, Invited Paper Session for the 2018 AAEA Annual Meeting.

“Economic Incentives for Managing Infectious Animal Disease”, Principal Paper Session of the annual meetings of the American Agricultural Economics Association, Portland, OR, July 2007.

“The Economics of Invasive Species Management”, Principal Paper Session of the annual meetings of the American Agricultural Economics Association, Long Beach, CA, August 2002.

“USDA and EPA’s Call for Action: New Directions for Managing Agricultural Sources of Nonpoint Pollution”, Principal Paper Session, annual meetings of the American Agricultural Economics Association, Nashville, TN, August 8-11, 1999.

Member, Polluted Runoff and Coastal Protection Implementation Team for the Clinton Administration’s Clean Water Action Plan, June 1998 to February 2000.

**Service to the Department, College, and University**

Departmental Service:

Faculty Search Committee (2022): 3 Assistant Prof. positions (Chair); Dept Chair

Department Advisory Committee (2006-07, Chair; 2005-06, Secretary)

Promotion and Tenure Committee (2010-2011, 2023)

Graduate Program Review Task Force (2008-2010)

Undergraduate Program Review Task Force (2010-2012)

Awards Committee (2007-08; 2004-05, Chair; 2022-2023 Chair)

Graduate Policy Committee (2013-2022, Chair: 2021-22, 2008-09; 2004-05)

AFRE Economics and Econometric Methods Committee (Chair, 2017-2022)

Ph.D. Thesis Selection Committee (2001-02; 2003-04, Chair; 2011-12, Chair)

Graduate Admissions Committee (2003-04)

Seminar Committee (2001-02; Co-chair)

International Development Field Exam Committee (2002, 2005-06)

Environmental and Resource Economics Field Exam Committee (2002,

2004, 2005, 2007, 2009 [Chair])

Graduate Orientation Committee (2001)

Faculty Advisor, Environmental Economics and Policy Club (2002 – 2004)

Faculty Search Committee (2021-22, Chair; 2006, 2002)

College Service:

College Advisory Council (2012-14, Elections officer; 2004-05, Secretary; 2002-03)

University Service:

Chair, Social and Behavioral Science Panel, Strategic Partnership Grants (SPG) Program (2009)

Program Advisory Committee, Environmental Science and Policy

Program (2004-05)

Faculty Search Committee (2 positions), Environmental Science and Policy

Program (2005)

Resource Economics Specialization Faculty (2000-present)

Reviewer, Intramural Research Grants Program (2001).

**Publications**

**Journal Articles**

89. Horan R.D., C. Sims, and D. Finnoff (2023). “Endogenous Risk and Habitat Loss from Climate Change: An Application to Seal Management After the November Rain”. ***Journal of the Association of Environmental and Resource Economists***. 17:1, 111-131.

88. Albers, H.J., K. Kroetz, C. Sims, A.W. Ando, D. Finnoff, R.D. Horan, R. Liu, E. Nelson, and J. Merkle. “Where, When, What, and Which? Using Characteristics of Migratory Species to Inform Conservation Policy Questions.” ***Review of Environmental Economics and Policy***. Forthcoming (Accepted March 2022).

87. Berry, K., R.D. Horan, D. Finnoff, R. Pompa, and P. Daszak (2022). "Investing to Both Prevent and Prepare for COVID-XX" ***EcoHealth.*** 19: 114-123.

https://doi.org/10.1007/s10393-022-01576-w.

86. Horan, R.D., and J.S. Shortle (2021). "The Song Remains Not the Same: Correlated Intercept and Slope Uncertainties Matter to Prices vs Quantities" ***Journal of the Association of Environmental and Resource Economists***. 8(4): 691 – 719.

85. Maloney, M., J. Merkle, D. Aadland, D. Peck, R.D. Horan, K. Monteith, T. Winslow, J. Logan, D. Finnoff; C. Sims, and B. Schumaker (2020). "Chronic Wasting Disease Undermines Efforts to Control the Spread of Brucellosis in the Greater Yellowstone Ecosystem" ***Ecological Applications***, 30(6): e02129.

84. Reeling, C., R.D. Horan, and C. Garnache (2020), “When the Levee Breaks: Can Multi-Pollutant Markets Break the Dam on Point-Nonpoint Market Participation?” ***American Journal of Agricultural Economics***, 102: 625-640.

83. Sims, C., R.D. Horan, and B. Meadows (2018), “Come on Feel the Noise: Ecological Foundations in Stochastic Bioeconomic Models” ***Natural Resource Modeling*** 31: article e12191 (doi.org/10.1111/nrm.12191).

82. Finnoff, D., K. Berry, C. Allen, R.D. Horan, J.F. Shogren, and P. Daszak (2018), “The Economic Case for a Pandemic Fund” ***EcoHealth*** 15: 244–258.

81. Chitchumnong, P. and R.D. Horan (2018), “Managing Disease Risks from Trade: Strategic Behavior with Many Choices and Price Effects” ***EcoHealth*** 15: 259–273.

80. Horan, R.D., D. Finnoff, J.F. Shogren, K. Berry, and C. Reeling (2018), “Managing Wildlife Faced with Pathogen Risks Involving Multi-Stable Outcomes” ***Environmental and Resource Economics*** 70: 713-730.

79. Horan, R.D., E.P. Fenichel, D. Finnoff, and C. Reeling (2018), “A Portfolio-Balancing Approach to Natural Capital and Liabilities: Managing Livestock and Wildlife Disease with Cross-Species Transmission” ***Environmental and Resource Economics*** 70: 673-689.

78. Reeling, C. and R.D. Horan (2018), “Economic Incentives for Managing Filterable Biological Pollution Risks from Trade” ***Environmental and Resource Economics*** 70: 651-671.

77. Reeling, C., C. Garnache, and R.D. Horan (2018), “Efficiency Gains from Integrated Multipollutant Trading” ***Resource and Energy Economics*** 52: 124-136.

76. Berry, K.C., D. Finnoff, R.D. Horan, and S.M. McDermott (2017), “The Role of Restoration in the Prevention of a Large-Scale Native Species Loss: Case Study of the Emerald Ash Borer” ***Journal of Forest Economics*** 27: 91-98.

75. Horan, R.D and J.S. Shortle (2017), “Endogenous Risk and Point-Nonpoint Uncertainty Trading Ratios” ***American Journal of Agricultural Economics*** 99: 427-446.

74. Shortle, J.S. and R.D. Horan (2017), “Nutrient Pollution: A Wicked Challenge for Economic Instruments” ***Water Economics and Policy*** 3, vol. 2: article no. 1650033 (39 pages).

73. Fenichel, E.P. and R.D. Horan (2016), “Tinbergen and Tipping points: Could some thresholds be policy-induced?” ***Journal of Economic Behavior and Organization*** 132 (part B): 137-152.

72. Finnoff, D., R.D. Horan, J.F. Shogren, C. Reeling, and K. Berry (2016), “Natural vs Anthropogenic Risk Reduction: Facing Invasion Risks Involving Multi-Stable Outcomes” ***Journal of Economic Behavior and Organization*** 132 (part B): 113-123.

71. Kampas, A., and R.D. Horan (2016), “Second-Best Pollution Taxes: Revisited and Revised” ***Environmental Economics and Policy Studies*** 18: 577-597.

70. Bichara, Y. Kung, C. Castillo-Chavez, R.Horan, and C. Perrings (2015), “SIS and SIR Epidemic Models under Virtual Dispersal” ***Bulletin of Mathematical Biology*** 77: 2004-2034.

69. Reeling, C. and R.D. Horan (2015), “Self-Protection, Strategic Interactions, and the Relative Endogeneity of Disease Risks” ***American Journal of Agricultural Economics*** 97: 452-468.

68. Horan, R.D., E.P. Fenichel, D. Finnoff, and C.W. Wolf (2015), “Managing Dynamic Epidemiological Risks through Trade” ***Journal of Economic Dynamics and Control*** 53: 192-207.

67. Berry, K., D. Finnoff, R.D. Horan, and J.F. Shogren (2015). “Managing the Endogenous Risk of Disease Outbreaks with Non-Constant Background Risk” ***Journal of Economic Dynamics and Control*** 51: 166-179.

66. Perrings, C., C. Castillo-Chavez, G. Chowell, P. Daszak, E. Fenichel, D. Finnoff, R.D. Horan, A.M. Kilpatrick, A. Kinzig, N. Kuminoff, S. Levin, B. Morin, K. Smith & M. Springborn. (2014). “Merging Economics and Epidemiology to Improve the Prediction and Management of Infectious Disease” ***EcoHealth*** 11: 464-475.

65. Melstrom, R.T., and R.D. Horan (2014), “Interspecies Management and Land Use Strategies to Protect Endangered Species” ***Environmental and Resource Economics*** 58: 199-218. DOI: 10.1007/s10640-013-9699-y.

64. Shortle, J.S., and R.D. Horan (2013), “Policy Instruments for Water Quality Protection” ***Annual Review of Resource Economics*** 5:6.1-6.28.

63. Melstrom, R.T., and R.D. Horan (2013), “Managing Excessive Predation in a Predator-Endangered Prey Setting” ***Ecological Economics*** 90: 85-93.

62. Mason, C., E.H. Bulte, and R.D. Horan (2012), “Banking on Extinction: Endangered Species and Speculation” ***Oxford Review of Economic Policy*** 28: 180-192.

61. Shortle, J.S., M.O. Ribaudo, R.D. Horan, and D. Blandford (2012) “Reforming Agricultural Nonpoint Pollution Policy in an Increasingly Budget-Constrained Environment” ***Environmental Science & Technology*** 46(3): 1316-1325. DOI: 10.1021/es2020499.

60. Ribaudo, M.O., J.S. Shortle, D. Blandford, and R.D. Horan (2011) “Improving the Efficiency and Effectiveness of Agri-Environmental Policies for the Chesapeake Bay” ***Choices*** 26(3).

59. Horan, R.D. and R.T. Melstrom (2011). “No Sympathy for the Devil” ***Journal of Environmental Economics and Management*** 62(3): 367-385. <http://dx.doi.org/10.1016/j.jeem.2011.05.001>.

58. Gramig, B.M. and R.D. Horan (2011). “Jointly-Determined Livestock Disease Dynamics and Decentralized Economic Behaviour” ***Australian Journal of Agricultural Economics*** 55: 393-410.

57. Horan, R.D., E.P. Fenichel, and R.T. Melstrom (2011). “Wildlife Disease Bioeconomics” ***International Review of Environmental and Resource Economics*** 5: 23-61. <http://dx.doi.org/10.1561/101.00000038>.

56. Bulte, E.H. and R.D. Horan (2011). “Intergenerational Transmission of Preferences” ***Economics Letters*** 112: 85-87.

55. Horan, R.D., E.P. Fenichel, K. Drury, and D.M. Lodge (2011). “Managing Ecological Thresholds in Coupled Environmental-Human Systems” ***Proceedings of the National Academy of Sciences of the United States of America*** 108: 7333-7338. doi:10.1073/pnas.1005431108.

54. Fenichel, E.P., C. Castillo-Chavez, M.G. Ceddia, G. Chowell-Puente, P.A. Gonzalez-Parra, G.J. Hickling, G. Holloway, R.D. Horan, B. Morrin, C. Perrings, M. Springborn, L. Velazquez, and C. Villalobos (2011). “Adaptive Human Behavior in Epidemiological Models” ***Proceedings of the National Academy of Sciences of the United States of America*** 108: 6306-6311. doi: 10.1073/pnas.1011250108.

53. Horan, R.D., J.F. Shogren, and E.H. Bulte (2011). “Joint Determination of Biological Encephalization and Economic Specialization” ***Resource and Energy Economics*** 33: 426-439.

52. Horan, R.D. and J.S. Shortle (2011). “Economic and Ecological Rules for Water Quality Trading” ***Journal of the American Water Resources Association*** 47: 59-69. *Winner of the 2012 American Water Resources Association’s Boggess Award for best paper published in the Journal of the American Water Resources Association in 2011.*

51. Horan, R.D. and F. Lupi (2010). “The Economics of Invasive Species Control and Management: The Complex Road Ahead” ***Resource and Energy Economics*** 32: 477-482.

50. Fenichel, E.P., R.D. Horan, and J. Bence (2010). “Indirect Management of Invasive Species through Bio-Controls: A Bioeconomic Model of Salmon and Alewife in Lake Michigan” ***Resource and Energy Economics*** 32: 500-518.

49. Horan, R.D., E.P. Fenichel, C.A. Wolf, and B.M. Gramig (2010). “Managing Infectious Animal Disease Systems” ***Annual Review of Resource Economics*** 2: 101-124.

48. Fenichel, E.P., R.D. Horan, and G.J. Hickling (2010). “Bioeconomic Management of Invasive Vector-Borne Diseases” ***Biological Invasions*** 12: 2877-2893***.***

47. Fenichel, E.P., R.D. Horan, and G. Hickling (2010). “Management of Infectious Wildlife Diseases: Bridging Conventional and Bioeconomic Approaches“ ***Ecological Applications*** 20: 903-914***.*** *This is the lead article in the issue.*

46. Bulte, E.H., and R.D. Horan (2010). “Identities in the Commons: Dynamics of Norms and Social Capital” ***The B.E. Journal of Economic Analysis & Policy*** 10(1; Topics): Article 13.

45. Gramig, B.M., R.D. Horan, and C.A. Wolf (2009). “Livestock Disease Indemnity Design when Moral Hazard is Followed by Adverse Selection” ***American Journal of Agricultural Economics*** 91: 627-641.

44. Xie, F. and R.D. Horan (2009). “Disease and Behavioral Dynamics for Brucellosis Control in Elk and Cattle in the Greater Yellowstone Area” ***Journal of Agricultural and Resource Economics*** 34: 11-33.

43. Horan, R.D., E.H. Bulte, and J.F. Shogren (2008). “Coevolution of Human Speech and Trade” ***Journal of Economic Growth*** 13: 293-313.

42. Shortle, J.S. and R.D. Horan (2008). “The Economics of Water Quality Trading” ***International Review of Environmental and Resource Economics*** 2: 101-133. *This is the lead article in the issue.*

41. Horan, R.D., C.A. Wolf, E.P. Fenichel, and K.H. Mathews, Jr. (2008). “Joint Management of Wildlife and Livestock Disease” ***Environmental and Resource Economics*** 41: 47-70.

40. Horan, R.D., J.F. Shogren, and B. Gramig (2008). “Wildlife Conservation Payments to Address Habitat Fragmentation and Disease Risks” ***Environment and Development Economics*** 13: 415-439.

39. Horan, R.D. and E.P. Fenichel (2007). “Economics and Ecology of Managing Emerging Infectious Animal Diseases” ***American Journal of Agricultural Economics*** 89: 1232-1238.

38. Fenichel, E.P., and R.D. Horan (2007). “Gender-Based Harvesting in Wildlife Disease Management” ***American Journal of Agricultural Economics*** 89: 904-920.

37. Fenichel, E.P. and R.D. Horan (2007). “Jointly-Determined Ecological Thresholds and Economic Tradeoffs in Wildlife Disease Management” ***Natural Resource Modeling*** 20: 511-547.

36. Horan, R.D., and R. Claassen (2007). “Targeting Green Payments under a Budget Constraint” ***Land Economics*** 83: 319-330.

35. Shortle, J.S., and R.D. Horan (2006). “Water Quality Trading” ***Penn State Environmental Law Review*** 14: 231-250.

34. Bulte, E.H., R.D. Horan, and J.F. Shogren (2006). “The Economics of Pleistocene Megafauna Extinction: Early Humans and the Overkill Hypothesis” ***Journal of Economic Behavior and Organization*** 59: 297-323. *This is the lead article in the issue*.

33. Horan, R.D., C.A. Wolf, E.P. Fenichel, and K. Mathews, Jr. (2005). “Spatial Management of Wildlife Disease” ***Review of Agricultural Economics*** 27: 483-490.

32. Horan, R.D., E.H. Bulte, and J.F. Shogren (2005). “How Trade Saved Humanity from Biological Exclusion: An Economic Theory of Neanderthal Extinction” ***Journal of Economic Behavior and Organization*** 58: 1-29. *This is the lead article in the issue, and the results have been featured in “The Economist”, “Forbes”, “Foreign Policy”, “New Scientist”, “The Chronicle of Higher Education”, “London Times” and the “Helsinki Gazette”, and in N. Gregory Mankiw’s Principles of Microeconomics, 4th ed.*

31. Horan, R.D. and C.A. Wolf (2005). “The Economics of Managing Infectious Wildlife Disease” ***American Journal of Agricultural Economics*** 87: 537-551. *This is the lead article in the issue, and received Best AJAE Article of 2005, Honorable Mention.*

30. Borisova, T., J. Shortle, R.D. Horan, and D. Abler (2005). “Value of Information for Water Quality Management” ***Water Resources Research*** 41(6): W06004, 10.1029/2004WR003576.

29. Horan, R.D. and F. Lupi (2005). “Economic Incentives for Controlling Trade-Related Biological Invasions in the Great Lakes” ***Agricultural and Resource Economics Review*** 34(1): 75-89.

28. Horan, R.D. and J.S. Shortle (2005). “When Two Wrongs Make a Right: Second-Best Point-Nonpoint Trading Ratios” ***American Journal of Agricultural Economics***87(2): 340-352.

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Horan, R.D., J.S. Shortle, M.O. Ribaudo, and D.G. Abler, “Second-Best Markets for Point/Nonpoint Pollution Trading”, Contributed Paper, the Ninth Annual Conference of the European Association of Environmental and Resource Economists, Oslo, Norway, June 25-27, 1999.

Claassen, R., and R.D. Horan, “Environmental Policy, Heterogeneity, and Land Values in Agriculture”, Selected Paper, the annual meetings of the American Agricultural Economics Association, Nashville, TN, August 8-11, 1999.

Horan, R.D., J.S. Shortle, and D.G. Abler, “The Design of Ambient Taxes under Heterogeneous Expectations and Risk-Aversion”, Selected Paper, the annual meetings of the American Agricultural Economics Association, Salt Lake City, UT, August 2-5, 1998.

Shortle, J.S., R.D. Horan, M.O. Ribaudo, and D.G. Abler, “Point/Nonpoint and Nonpoint/Nonpoint Trading Rules”,Selected Paper. the annual meetings of the American Agricultural Economics Association, Salt Lake City, UT, August 2-5, 1998.

Shortle, J.S., R.D. Horan, and D.G. Abler, “Economic Incentives for Nonpoint Pollution Control: Input versus Ambient-Based Taxes”, Contributed paper, annual meetings of the European Association of Environmental and Resource Economists, Tilburg, The Netherlands, July, 1997.

Shortle, J.S., R.D. Horan, and D.G. Abler, “Economic Incentives for Nonpoint Pollution Control: A Unified Model and Comparison of Input and Ambient Based Instruments”, Selected Paper, the annual meetings of the American Agricultural Economics Association, Toronto, CN, August 1997.

Horan, R.D., E.H. Bulte, and J.S. Shortle, “Fishing for Dollars: The Impact of Political Preferences on Fisheries Management”, Presented at the annual meetings of the Northeast Agricultural and Resource Economics Association, Atlantic City, NJ, June 1996.

Horan, R.D., and J.S. Shortle, “Fishing for Mammals: Optimal Harvesting of Differentiated Stocks of Minke Whales”, Presented at the AERE sessions of the annual meetings of the American Agricultural Economics Association, San Antonio, TX, July, 1996.

**Invited Conference, Workshop, and Departmental Seminars**

Horan, R.D., and J.S. Shortle (2021). "The Song Remains Not the Same: Correlated Intercept and Slope Uncertainties Matter to Prices vs Quantities", paper presented in the Department of Energy and Mineral Engineering", Penn State University, November 2021.

Horan, R.D., and E.P. Fenichel. "Money Talks: Pricing Inefficiently-Managed Natural Resources to Convey the Right Signals", paper presented in the Department of Energy and Mineral Engineering", Penn State University, March 2019.

Horan, R.D., “Endogenous Risk in Coupled Economic-Ecological Systems”, presentation at the workshop “Managing Natural Resource Risk in the Ancient and Modern World”, Santa Fe Institute, October 2018.

Horan, R.D., C. Reeling, and J. Shortle, “Distorting Emissions Permit Markets to Reduce Welfare Losses from Sub-Optimal Caps”, paper presented at the Department of Applied Economics, Oregon State University, 2018.

Bugas Lecturer, Department of Economics, University of Wyoming, Nov. 14-16, 2017.

Reeling, C., R.D. Horan, and C. Garnache, “Breakdown of the Equi-Marginal Principle in Permit Markets Involving Multiple Pollutants”, paper presented at the Department of Economics, University of Tennessee. 2017.

Horan, R.D., and D. Finnoff, “Optimal Management of a Native Species Facing Invasion Risks Involving Multi-Stable Outcomes”, paper presented at the Pennsylvania State University, Environmental and Resource Institute, November, 2013.

R.D. Horan, E.P. Fenichel, D. Finnoff, and C.A. Wolf. “Arbitrage of Epidemiological Risks in Livestock Markets”, presented at the University of Minnesota, Department of Applied Economics, May 2013.

Horan, R.D., E.P. Fenichel, K. Drury, and D.M. Lodge, “Managing Ecological Thresholds in Coupled Environmental-Human Systems: Applications to Invasive Species and Animal Disease Problems”, paper presented at the Pennsylvania State University, Environmental and Resource Institute, October 21, 2010.

Horan, R.D., J.F. Shogren, and E.H. Bulte, “A Paleoeconomic Theory of Encephalization”, Keynote Address, CL Burton Conference, University of Wyoming, November 21, 2008.

Horan, R.D. and E.P. Fenichel, “A Bioeconomic Approach to Managing Multiple-Host Wildlife Diseases”, Presented at the Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, February 9, 2007.

Horan, R.D. and E.P. Fenichel, “Ecological Thresholds, Economic Trade-offs, and Targeting to Control Wildlife Disease: A case study of bovine tuberculosis in white-tailed deer” Presented at the Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, November 11, 2005.

Horan, R.D., C. Wolf, and K. Matthews, Jr., “Jointly-Determined Ecological Thresholds and Economic Trade-offs in Wildlife Disease Management: A case study of bovine tuberculosis in white-tailed deer”, Presented at the 2005 PREISM Workshop, Economic Research Service, Washington, DC, October 20-21, 2005.

Horan, R.D., C. Wolf, and K. Matthews, Jr., “The Economics of Managing Infectious Wildlife Diseases when Livestock are at Risk”, Presented at the 2004 PREISM Workshop, Economic Research Service, Washington, DC, August 19-20, 2004.

Horan, R.D. and C. Wolf, “Using Economics and Rocket Science to Manage Wildlife Disease: An Application to Bovine Tuberculosis in Michigan White-Tailed Deer”, Presented at the Department of Agricultural Economics, Michigan State University, September 2003.

Horan, R.D., and F. Lupi, “Tradeable Risk Permits to Prevent Future Introductions of Invasive Alien Species in the Great Lakes.”, Presented at the conference, *University of Wyoming Conference on Bioinvasions*, Laramie, WY, June 5-7, 2003.

Horan, R.D., “The Economics of Ecological Restoration: A Co-Evolutionary Perspective”, Presented at the conference, *Forging Connections for the Science and Practice of Ecological Restoration*, University of Illinois, Urbana-Champaign, February 22, 2003.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “How Trade Saved Humanity from Biological Exclusion: An Economic Theory of Neanderthal Extinction”, Presented at the Department of Economics, University of Michigan, September 2002.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “How Trade Saved Humanity from Biological Exclusion: An Economic Theory of Neanderthal Extinction”, Presented at the Department of Applied Economics, University of Minnesota, February 2002.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “How Trade Saved Humanity from Biological Exclusion: An Economic Theory of Neanderthal Extinction”, Presented at the Department of Agricultural Economics, Michigan State University, February 2002.

Horan, R.D. and E.H. Bulte, “Resource or Nuisance? Managing African Elephants as a Multi-Use Species”, Presented at the Department of Agricultural Economics, Michigan State University, April 2001.

Claassen, R., and R.D. Horan, “Market and Distributional Impacts of Second-Best Agri-Environmental Policies”, Presented at the Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, March 1999.

Horan, R.D., J.S. Shortle, and E.H. Bulte, “Renewable Resource Policy when Distributional Impacts Matter”, Presented at the Department of Energy, Environmental, and Mineral Economics, The Pennsylvania State University, April 1997.

Horan, R.D., J.S. Shortle, and E.H. Bulte, “Renewable Resource Policy when Distributional Impacts Matter”, Presented at the Economic Research Service, USDA, Washington, DC, July 1997.