## Richard D. Horan

October 2023

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

27. Horan, R.D., and F. Lupi (2005). “Tradeable Risk Permits to Prevent Future Introductions of Invasive Alien Species in the Great Lakes” ***Ecological Economics*** 52(3): 289-304.

26. Horan, R.D. and E.H. Bulte (2004). “Optimal and Open Access Harvesting of Multi-Use Species in a Second-Best World” ***Environmental and Resource Economics*** 28(3): 251-272.

25. 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. *Selected as the Northeast Agricultural and Resource Economics Association’s Article of the Year – 2004.*

24. Bulte, E.H., C. Mason, and R.D. Horan (2003). “Betting on Extinction: Endangered Species and Speculation” ***Land Economics*** 79: 460-471.

23. Bulte, E.H., R.D. Horan, and J.F. Shogren (2003). “Elephants: Comment” ***American Economic Review*** 93(4): 1437‑1445.

22. Bulte, E.H., R.D. Horan, and J.F. Shogren (2003). “Is The Tasmanian Tiger Extinct? A Biological-Economic Re-Evaluation” ***Ecological Economics*** 45: 271-279.

21. Horan, R.D., J.F. Shogren, and E.H. Bulte (2003). “A Paleoeconomic Theory of Co-Evolution and Extinction of Domesticable Animals” ***Scottish Journal of Political Economy*** 50 (2): 19-36.

20. Bulte, E.H. and R.D. Horan (2003). “Habitat Conservation, Wildlife Extraction, and Agricultural Expansion” ***Journal of Environmental Economics and Management*** 45: 109-127. *The model and analsysis forms the basis for much of Chapter 10 in J.M. Conrad and D. Rondeau’s Natural Resource Economics: Analysis, Theory, and Applications 2020 (Cambridge)*.

19. Horan, R.D., C. Perrings, F. Lupi, and E. Bulte (2002). “Biological Pollution Prevention Strategies Under Ignorance: The Case of Invasive Species” ***American Journal of Agricultural Economics*** 84: 1303-1310.

18. Abler, D.G., J.S. Shortle, J. Carmichael, and R.D. Horan (2002). “Climate Change, Agriculture, and Water Quality in the Chesapeake Bay Region” ***Climatic Change*** 55: 339-359.

17. Bulte, E.H. and R.D. Horan (2002). “Does Human Population Growth Increase Wildlife Harvests? An Economic Assessment” ***Journal of Wildlife Management*** 66: 574-580.

16. Horan, R.D., J.S. Shortle, and D.G. Abler (2002). “Point-Nonpoint Nutrient Trading in the Susquehanna River Basin” ***Water Resources Research*** 38(5): **8**-1 – **8**-13, 10.1029/2001WR000853 (reprinted in *Economics of Water Quality* , K. W. Easter and N. Zeitouni, eds., Ashgate Publishing, 2006).

15. Horan, R.D., D.G. Abler, J.S. Shortle, and J. Carmichael (2002). “Cost-Effective Point-Nonpoint Trading: An Application to the Susquehanna River Basin” ***Journal of the American Water Resources Association*** 38:467-478.

14. Horan, R.D., J.S. Shortle, and D.G. Abler (2002). “Ambient Taxes under *m*-Dimensional Choice Sets, Heterogeneous Expectations, and Risk-Aversion” ***Environmental and Resource Economics*** 21: 189-202.

13. Horan, R.D., R. Claassen, and E.L. Howe (2001). “The Welfare Sensitivity of Agri-Environmental Instruments” ***Journal of Agricultural and Resource Economics*** 26: 368-386.

12. Horan, R.D. (2001). “Differences in Social and Public Risk Perceptions and Conflicting Impacts on Point/Nonpoint Trading Ratios” ***American Journal of Agricultural Economics*** 83: 934-941.

11. Shortle, J.S. and R.D. Horan (2001). “The Economics of Nonpoint Pollution Control” ***Journal of Economic Surveys***15: 255-289. (Reprinted in *Issues in Environmental Economics*, N. Hanley and C.J. Roberts, eds., Blackwell Publishers, 2002).

10. Claassen, R., and R.D. Horan (2001). “Uniform and Non-Uniform Second-Best Input Taxes: The Significance of Market Price Effects on Efficiency and Equity” ***Environmental and Resource Economics*** 19: 1-22. *This is the lead article for the issue.*

9. Horan, R.D. (2001). “Cost-Effective and Stochastic Dominance Approaches to Stochastic Pollution Control” ***Environmental and Resource Economics*** 18: 373-389.

8. Horan, R.D., J. Hrubovcak, J.S. Shortle, and E.H. Bulte (2000). “Accounting for the Distributional Impacts of Policy in the Green Accounts” ***Environment and Development Economics*** 5: 95-108. (Reprinted in *Natural Resource Accounting and Economic Development: Theory and Practice*, C. Perrings and J. Vincent, eds., Edward Elgar, 2003).

7. Horan, R.D., J.S. Shortle, and D.G. Abler (1999). “Green Payments for Nonpoint Pollution Control” ***American Journal of Agricultural Economics***81: 1210-1215.

6. Ribaudo, M.O., and R.D. Horan (1999). “The Role of Education in Nonpoint Source Pollution Control Policy” ***Review of Agricultural Economics*** 21: 331-343.

5. Horan, R.D., and M.O. Ribaudo (1999). “Policy Objectives and Economic Incentives for Controlling Agricultural Sources of Nonpoint Pollution” ***Journal of the American Water Resources Association*** 35: 1023-1035.

4. Horan, R.D., J.S. Shortle, and E.H. Bulte (1999). “Renewable Resource Policy when Distributional Impacts Matter” ***Environmental and Resource Economics*** 14:191‑216.

3. Horan, R.D., and J.S. Shortle (1999). “Optimal Management of Multiple Renewable Resource Stocks: An Application to Minke Whales” ***Environmental and Resource Economics*** 13: 435-458.

2. Horan, R.D., J.S. Shortle, and D.G. Abler (1998). “Ambient Taxes when Polluters Have Multiple Choices” ***Journal of Environmental Economics and Management*** 36: 186-199. (Reprinted in *Irrigated Agriculture and the Environment*, J.S. Shortle and R. Griffen, eds., Edward Elgar: Cheltenham, UK, 2001).

1. Shortle, J.S., R.D. Horan, and D.G. Abler (1998). “Research Issues in Nonpoint Pollution Control” ***Environmental and Resource Economics*** 11: 571‑585.

**NAS Publication**

National Academies of Sciences, Engineering, and Medicine. 2017. *Revisiting Brucellosis in the Greater Yellowstone Area*. Washington, DC: The National Academies Press. Member, Authoring Committee.

**USDA Publications**

Claassen, R., and R.D. Horan (2000). “Environmental Payments to Farmers: Issues of Program Design”, ***Agricultural Outlook***, AGO-272: 15-18.

M. Ribaudo with contributions by D. Gadsby, R. Horan, and M. Smith (2000). “Water Quality Programs”, Chapter 6.4 in *Agricultural Resources and Environmental Indicators, 2000*. U.S. Department of Agriculture, Economic Research Service, Resource Economics Division. .

Ribaudo, M.O., R.D. Horan, and M.E. Smith (1999). *Economics of Water Quality Protection from Nonpoint Sources - Theory and Practice*, ERS Agricultural Economics Report, AER-782, U.S. Department of Agriculture, Economic Research Service, Resource Economics Division.

Ribaudo, M.O., and R.D. Horan (1998). “The Clean Water Action Plan: Implications for Agriculture”, ***Agricultural Outlook***, AGO-255: 23-25.

**Books**

 Batie, S.S. and R.D. Horan (eds.) (2004). *The Economics of Agri-Environmental Policy*, *Volumes I and II,* The International Library in Environmental Economics and Policy, Ashgate Publishing, 1028 pages in two volumes.

**Chapters in Books**

Finnoff, D., J.F. Shogren, R.D. Horan, S.M. McDermott, and C. Sims (2013), “Economic Control of Invasive Species”, pp.16-24 in *Encyclopedia of Biodiversity, Second Edition, Volume 3* (S. Levin, ed). Waltham, MA: Academic Press.

Horan, R.D., C.A. Wolf, and E.P. Fenichel (2012), “Dynamic Perspectives on the Control of Animal Disease: Merging Epidemiology and Economics”, Chapter 6 in *Health and Animal Agriculture in Developing Countries* (D. Zilberman, J. Otte, D. Roland-Holst, and D. Pfeiffer, eds.), Springer Press and Food and Agriculture Organization of the United Nations.

J.S. Shortle and R.D. Horan, “Tailoring Environmental Standards, Environmental Taxes, and Tradable Permits”, in *Guidelines for the Design and Implementation of Cost-Effective Agri-Environmental Policy Measures*, Joint Working Party on Agriculture and the Environment, Organisation for Economic Co-Operation and Development (OECD).

Horan R.D., J.F. Shogren, and B.M. Gramig (2008), “Conservation Payments to Reduce Wildlife Habitat Fragmentation and Disease Risks”, Chapter 6 in *Payment for Environmental Services in Agricultural Landscapes*: *Economic Policies and Poverty Reduction in Developing Countries* (L.M. Lipper, T. Sakuyama, R. Stringer, D. Zilberman, eds.)**,** Springer Press and Food and Agriculture Organization of the United Nations.

Shortle, J.S. and R.D. Horan (2007). “The Economics of Nonpoint Pollution Control”, in *Issues in Environmental Economics* (C. Mason and E. Bulte, eds.), Routledge.

Horan, R.D., J.S. Shortle, and D.G. Abler (2006). “Point-Nonpoint Nutrient Trading in the Susquehanna River Basin”, in *Economics of Water Quality* (K. W. Easter and N. Zeitouni, eds.), Ashgate Publishing.

Batie, S.S. and R.D. Horan (2004), “Preface”, *The Economics of Agri-Environmental Policy*, *Volume I,* (S.S. Batie and R.D. Horan, eds.), The International Library in Environmental Economics and Policy, Ashgate Publishing.

 Horan, R.D., J. Hrubovcak, J.S. Shortle, and E.H. Bulte (2003). “Accounting for the Distributional Impacts of Policy in the Green Accounts”, Chapter 6 in *Natural Resource Accounting and Economic Development: Theory and Practice* (C. Perrings and J. Vincent, eds.), Edward Elgar, Cheltenham, UK.

Shortle, J.S. and R.D. Horan (2002). “The Economics of Nonpoint Pollution Control”, in *Issues in Environmental Economics,* N. Hanley and C.J. Roberts, eds., Blackwell Publishers.

Horan, R.D., J.S. Shortle, and D.G. Abler (2001). “Ambient Taxes when Polluters Have Multiple Choices”, in *Irrigated Agriculture and the Environment*, J.S. Shortle and R. Griffen, eds., Edward Elgar: Cheltenham, UK.

Batie, S.S. and R.D. Horan (2001). “Green Payments Policy”, *2002 Farm Bill Policy Options and Consequences* (J.L. Outlaw and E.G. Smith, eds.), Publication No. 2001-01, Farm Foundation, Oak Brook, IL.

Horan, R.D. and J.S. Shortle (2001). “Environmental Instruments for Agriculture”, Chapter 2 in *Environmental Policies for Agricultural Pollution Control* (J.S. Shortle and D.G. Abler, eds.), CAB International: Oxfordshire, UK.

Horan, R.D., M.O. Ribaudo, and D.G. Abler (2001). “Voluntary and Indirect Approaches for Reducing Externalities and Satisfying Multiple Constraints”, Chapter 3 in *Environmental Policies for Agricultural Pollution Control* (J.S. Shortle and D.G. Abler, eds.), CAB International: Oxfordshire, UK.

**Chapters in Refereed Conference Proceedings**

Shortle, J.S., R.D. Horan, and N. Nguyen (2006), “Designing Policy Instruments for Controlling Air and Water Emissions from Agriculture”, in *Workshop on Agriculture and Air Quality: State of The Science*, (V. Aneja, W. Schlesinger, R. Knighton, G. Jennings, D. Niyogi, W. Gilliam, and C. Duke, eds.), North Carolina State University.

Horan, R., D. Abler, J. Shortle, J. Carmichael, and L. Wang (2001). “Probabilistic Cost-Effective Point/Nonpoint Nutrient Management in the Susquehanna River Basin”, in *Proceedings of the Integrated Decision-Making for Watershed Management Symposium: Processes and Tools* (D. Bosch, ed.), Virginia Polytechnic Institute and State University, Blacksburg VA. VWRRC P7, pp.265-281.

**MSU Staff Papers**

Horan, R.D., R. Claassen, and W. Zhang (2004), “Instrument Choice and Targeting”. Staff paper 04-15, Department of Agricultural Economics, Michigan State University.

Horan, R.D., R. Claassen, J. Agapoff, and W. Zhang (2004), “Instrument Choice and Budget-Constrained Targeting”, Staff paper 04-14, Department of Agricultural Economics, Michigan State University.

Horan, R.D., R. Claassen, and J. Oehmke (2004), “Warm and Fuzzy Green Payments”, Staff paper 04-16, Department of Agricultural Economics, Michigan State University.

Horan, R.D., J.S. Shortle, D.G. Abler, and M. Ribaudo (2001). “The Design and Comparative Economic Performance of Alternative Second-Best Point/Nonpoint Trading Markets”, Staff Paper #2001-16, Department of Agricultural Economics, Michigan State University.

 **Other Publications**

Wolf, C., J. Hadrich, R. Horan, P. Paarlberg, and J. Kaneene (2008). “Economic Analysis of US TB Eradication Program Options”, Report to USDA-Animal and Plant Health Inspection Service.

Horan, R.D., “Report on EPA Economic Impacts of Aquatic Invasive Species Workshop Held July 20-21, 2005, Washington, DC”, in *Workshop Summary*, EPA Office of Water and Office of Policy, Economics, and Innovation.

Horan, R.D. (1997). *New Directions in Renewable Resource Management: Essays on the Bioeconomics of Ecological Interactions, Multiple Agencies, Public Choice, and Multiple Harvesting Grounds*, unpublished Ph.D. dissertation, Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University(Professor James S. Shortle, committee chair).

Barron, E., A. Fisher, R.D. Horan, C.G. Knight, J.S. Shortle, and B. Yarnal (1997). “Regional Impacts and Implications of Climate Variability and Change”, White Paper, Mid‑Atlantic Workshop on Regional Climate Impacts, The Pennsylvania State University, University Park, Pa. September 9-11, 1997.

**Presented Papers**

**Papers Presented at Professional Meetings**

Horan, R.D, and D. Finnoff. Managing an Infected Wildlife Population Facing Disease Risks from Another Pathogen: An Application to Brucellosis and CWD in Greater Yellowstone Area Elk. Annual Meetings of the Agricultural and Applied Economics Association. July 2023.

Horan, R.D., A. Hopkins, D. Finnoff, and S. Lindley. Managing a Portfolio of Spatial Wildlife Infection Risks: An Application to Elk in the Greater Yellowstone Area. Annual Meetings of the Agricultural and Applied Economics Association. August 2022.

Horan, RD, and D. Finnoff. "Should I Stay or Should I Go? Approximating Analytical Decision Rules that Solve Dynamic Programming Problems" Annual BIOECON meeting, Jackson Hole, WY, September 2021.

Horan, RD, C. Sims, and D. Finnoff. Endogenous Risk and Habitat Loss from Climate Change:

An Application to Seal Management After the November Rain. Annual BIOECON meeting, Jackson Hole, WY, September 2021.

Hopkins, A.S., R.D. Horan, and C. Reeling. "Multipollutant Trading and Risk." Annual Meetings of the Agricultural and Applied Economics Association. August 2021.

Horan, R.D., C. Reeling, and J.S. Shortle. “Distorting Permit Markets to Reduce Welfare Losses from Sub-Optimal Caps”, Selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, July 2019.

Horan, R.D., J.S. Shortle, “The Song Remains Not the Same: Correlated Intercept and Slope Uncertainties Matter to Prices vs Quantities”, Track paper presented at the annual meetings of the Agricultural and Applied Economic Association, July 2019.

Garnache, C., R.D. Horan, and C. Reeling. “Linking Markets to Improve Trading Program Participation and Performance”, Invited paper presented at the annual meetings of the Agricultural and Applied Economic Association, August 2018.

Horan, R.D. and C. Reeling, “Managing Livestock Disease Transmission as a Nonpoint Source Biological Pollutant”, Selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, August 2017.

Horan, R.D., M. Castro, and C.A. Wolf, “Managing Biological Pollution with Trade Flows in Mind: An Endogenous Ecological-Economic Geography”, Selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, August 2017.

Horan, R.D., and E.P. Fenichel, “A Portfolio-Trade Approach to Livestock and Wildlife Management”, paper presented at the Bioecon Conference, Cambridge University, UK, September 2015.

Horan, R.D., D. Finnoff, C. Reeling, K. Berry, and J.F. Shogren, “Managing Wildlife Faced with Pathogen Risks Involving Multi-Stable Outcomes”, paper presented at the Bioecon Conference, Cambridge University, UK, September 2015.

Horan, R.D., C. Reeling, and C. Garnache, “When the Levee Breaks: Linking Markets to Improve Trading Program Participation and Performance”, paper presented in the environmental track sessions at the annual meetings of the Agricultural and Applied Economic Association, July 2015.

Reeling, C. and R.D. Horan, “Policy Tools for Managing Biological Pollution Risks from Trade”, selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, July 2015.

Chitchumnong, P., and R.D. Horan, "Multiple Choices, Strategic Interactions, and Market Effects in Livestock Disease Risk Management", selected paper presented at the annual meetings of the Agricultural and Applied Economic Association, July 2015.

Horan, R.D., D Finnoff, and J.F. Shogren. “Managing a Native Species Facing Invasion Risks Involving Multi-Stable Outcomes”, Workshop on Thresholds, Tipping Points and Random Events in Dynamic Economic Systems, University of Tennessee.

Fenichel, E.P. and R.D. Horan. “Tinbergen and Tipping Points: Could Some Thresholds be Policy Induced?” Workshop on Thresholds, Tipping Points and Random Events in Dynamic Economic Systems, University of Tennessee.

Horan, R.D., D. Finnoff, K. Berry, and C. Reeling, “Optimal Management of a Native Species Facing Invasion or Infection Risks Involving Multi-Stable Outcomes”, selected paper presented at the annual meetings of the Agricultural and Applied Economic Association, August 2014.

Horan, R.D. and J.S. Shortle, “Point-Nonpoint Heresy?! An Endogenous Risk Explanation for Point-Nonpoint Trading Ratios Less than One”, selected paper presented at the annual meetings of the Agricultural and Applied Economic Association, August 2014.

Reeling, C. and R.D. Horan, “Self-Protection, Strategic Interactions, and the Relative Endogeneity of Disease Risks”, selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, August 2013.

Melstom, R.T. and R.D. Horan. “Excessive Predation in a Predator-Endangered Prey Setting”, Selected paper presented at the annual meetings of the Agricultural and Applied Economic Association, August 2012.

Melstom, R.T. and R.D. Horan. “Excessive Predation in a Predator-Endangered Prey Setting”, Selected paper presented at the annual meetings of the Association of Environmental and Resource Economists, Asheville, NC., June 2012.

Horan, R.D., E.P. Fenichel, D. Finnoff, and C.A. Wolf. “Market-Driven Disease Dynamics”, Selected paper presented at the annual meetings of the Association of Environmental and Resource Economists, Asheville, NC., June 2012.

Horan, R.D. and J.S. Shortle, “Multi-Sector Environmental Permit Trading for Cooperative Resource Management: An Application to Water Pollution and Fisheries”, Selected Paper presented at the annual meetings of the Agricultural and Applied Economic Association, Pittsburgh, PA, July 2011.

Xie, F., and R.D. Horan, “Optimal Control of Brucellosis in Bison in the Yellowstone National Park Area”, Selected Poster presented at the annual meetings of the Agricultural and Applied Economic Association, Denver, CO, July 2010.

Horan, R.D., and R.T. Melstrom, “No Sympathy for the Devil: Comparing Test-and-Removal versus Test-and-Translocation Strategies for Disease Management“ paper presented at the World Congress of Environmental and Resource Economists, Montreal, CN, June 2010.

Xie, F., R.D. Horan, C.A. Wolf, and K. Mathews, Jr., “A Gravity Model of Bovine TB in the U.S.” Selected paper presented at the annual meetings of the Agricultural and Applied Economic Association, Milwaukee, WI, July 2009.

Horan, R.D. and A. Xepapadeas, “Coevolution of Livestock Diseases and Management Choices”, Selected poster presented at the annual meetings of the Agricultural and Applied Economic Association, Milwaukee, WI, July 2009.

Horan, R.D., J.F. Shogren, and E.H. Bulte, “A Paleoeconomic Theory of Encephalization”, Selected paper presented at the annual meetings of the American Economic Association, San Francisco, CA, January 2009.

Fenichel, E.P., R.D. Horan, and J. Bence, “Indirect management of Invasive Species through Bio-Controls: A Bioeconomic Model of Salmon and Alewife in Lake Michigan”, presented at the 10th Annual BIOECON Conference, Cambridge University, UK, September 2008.

Horan, R.D., J.F. Shogren, and E.H. Bulte, “Paleoeconomic Origins of Agriculture: Climate, Property, and Competitive Exclusion”, Selected paper, the annual meetings of the American Agricultural Economics Association, Orlando, FL, July 2008.

Gramig, B., R.D. Horan, and C.A. Wolf, “Livestock Disease Indemnity Design when Moral Hazard is Followed by Adverse Selection”, Selected paper, the annual meetings of the American Agricultural Economics Association, Orlando, FL, July 2008.

Xie, F., and R.D. Horan, “Disease and Behavioral Dynamics for Brucellosis in Elk and Cattle in the Greater Yellowstone Area”, Selected paper, the annual meetings of the American Agricultural Economics Association, Orlando, FL, July 2008.

Horan, R.D. and E.P. Fenichel (2007), “Economics and Ecology of Managing Emerging Infectious Animal Diseases”, Principal paper, presented at the annual meetings of the American Agricultural Economics Association, Portland, OR, July 2007.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “Coevolution of Human Speech and Trade” Presented at the First Conference on Early Economic Developments, University of Copenhagen, August 31 – September 1, 2006.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “Coevolution of Human Speech and Trade”, selected paper, presented at the annual meetings of the American Agricultural Economics Association, Long Beach, CA, July 2006.

Horan, R.D., J.F. Shogren, and B. Gramig, “Wildlife Conservation Payments to Address Habitat Fragmentation and Disease Risks”, selected paper, presented at the annual meetings of the American Agricultural Economics Association, Long Beach, CA, July 2006.

Fenichel, E.P. and R.D. Horan, "Jointly-Determined Ecological Thresholds and Economic Trade-offs in Wildlife Disease Management" presented at the Seventh Annual BioEcon Conference on "Economics and the Analysis of Ecology and Biodiversity" at Kings College in Cambridge, England, September 20-21, 2005.

Fenichel, E.P. and R.D. Horan. “Jointly-Determined Ecological Thresholds and Economic Trade-Offs In Wildlife Disease Management” Contributed paper to Seventh Annual Heartland Environmental & Resource Economics Workshop at Iowa State University, Ames, IA. September 18-19, 2005.

Fenichel, E.P. and Richard D. Horan, “Understanding Ecological and Economic Interactions in Wildlife Disease Management”, selected paper, Midwest Fish and Wildlife Conference, Grand Rapids, MI, September 2005.

Gramig, B., R.D. Horan, and C.A. Wolf, "A Model of Incentive Compatibility under Moral Hazard in Livestock Disease Outbreak Response", selected paper, presented at the annual meetings of the American Agricultural Economics Association, Plymouth, RI, July 2005.

Horan, R.D., C.A. Wolf, E.P. Fenichel, and K. Mathews, Jr. "Spatial Management of Wildlife Disease." Principal paper at the AAEA sessions of the ASSA meetings, Philadelphia, PA, January 6-9, 2005.

Fenichel, E.P., R.D. Horan, and C.A. Wolf, “Wildlife Disease Management Policies Based on Sexual Dimorphism: An Economic Argument” Selected paper, the annual conference of The Wildlife Society, Calgary, AB, Canada, September 18-23, 2004.

Horan, R.D., C.A. Wolf, E.P. Fenichel, and K.H. Matthews, Jr., “Wildlife and Livestock Disease Control with Inter-and Intra-Specific Transmission”, Selected paper, the annual meetings of the American Agricultural Economics Association, Denver, CO, August 1-4, 2004.

Horan, R.D., R. Claassen, J. Agapoff, and W. Zhang, “Instrument Choice and Budget-Constrained Targeting”, Selected paper, the annual meetings of the American Agricultural Economics Association, Denver, CO, August 1-4, 2004.

Fenichel, E.P., R.D. Horan, and C.A. Wolf, “The Role of Sexual Dimorphism in the Economics of Wildlife Disease Management”, Selected paper, the annual meetings of the American Agricultural Economics Association, Denver, CO, August 1-4, 2004.

Horan, R.D. and F. Lupi, “Economic Incentives for Controlling Trade-Related Biological Invasions in the Great Lakes”, Presentation at the Northeast Agricultural and Resource Economics Association’s workshop *Trade and the Environment*, Halifax, Nova Scotia, June 23, 2004.

Horan, R.D., and C.A. Wolf, “The Economics of Managing Wildlife Disease: Bovine TB in Michigan Deer Populations.”, Selected paper, the annual meetings of the American Agricultural Economics Association, Montreal, CN, July 27-30, 2003.

Horan, R.D., and F. Lupi, “Tradeable Risk Permits to Prevent Future Introductions of Invasive Alien Species in the Great Lakes.”, Selected paper, the annual meetings of the American Agricultural Economics Association, Montreal, CN, July 27-30, 2003.

Zhang, W., R.D. Horan, and R. Claassen, “The Economics of Green Payments for Reducing Agricultural Nonpoint Source Pollution in the Corn Belt”, Selected paper, the annual meetings of the American Agricultural Economics Association, Montreal, CN, July 27-30, 2003.

Borisova, T., J.S. Shortle, R.D. Horan, and D.G. Abler, “The Value of Ecological and Economic Information In Water Quality Management”, Selected paper, the annual meetings of the American Agricultural Economics Association, Montreal, CN, July 27-30, 2003.

Zhang, W., R.D. Horan, and R. Claassen, “The Economics of Green Payments for Reducing Agricultural Nonpoint Source Pollution in the Corn Belt”, Selected paper, the International Congress on Watershed Management for Water Supply Systems, New York City, NY, June 29 - July 2, 2003.

Horan, R.D., J.S. Shortle, and D.G. Abler, "Coordination of Point-Nonpoint Trading Programs and Agri-Environmental Policies", Presentation at the Northeast Agricultural and Resource Economics Association’s workshop *Linkages between Agricultural and Conservation Policies*, Portsmouth, New Hampshire, June 10-11,2003.

Horan, R.D., E.H. Bulte, and J.F. Shogren, “How Trade Saved Humanity from Biological Exclusion: The Neanderthal Enigma Revisited and Revised”, presented at the AERE sessions of the annual meetings of the American Agricultural Economics Association, Long Beach, CA, August 2002.

Horan, R.D., C. Perrings, F. Lupi, and E. Bulte, “Biological Pollution Prevention Strategies Under Ignorance: The Case of Invasive Species” Principal Paper, annual meetings of the American Agricultural Economics Association, Long Beach, CA, August 2002.

 Abler, D.G., J.S. Shortle, J. Carmichael, and R.D. Horan, “Climate Change and Water Quality in the Chesapeake Bay Region”, Contributed paper, American Water Resources Association Annual Water Resources Conference, Albuquerque, NM, November 2001.

Abler, D.G., J.S. Shortle, J. Carmichael, and R.D. Horan, “Climate Change, Agriculture, and Water Quality in the Chesapeake Bay Region”, Selected paper, annual meetings of the American Agricultural Economics Association, Chicago, IL, August 2001.

Bulte, E.H., R.D. Horan, and J.F. Shogren, “Banking on Extinction: Ivory Storage and Elephant Conservation”, Selected paper, annual meetings of the American Agricultural Economics Association, Chicago, IL, August 2001.

Horan, R.D. and E.H. Bulte, “Resource or Nuisance? Managing African Elephants as a Multi-Use Species”, Selected paper, annual meetings of the American Agricultural Economics Association, Chicago, IL, August 2001.

Horan, R.D., D.G. Abler, J.S. Shortle, “Probabilistic, Cost-Effective Point/Nonpoint Management in the Susquehanna River Basin”, Contributed paper, the annual conference of the European Association of Environmental and Resource Economists, Southampton, UK June 28-30, 2001.

Bulte, E.H. and R.D. Horan, “Habitat Conservation, Wildlife Extraction, and Agricultural Expansion.” Contributed paper, the annual conference of the European Association of Environmental and Resource Economists, Southampton, UK June 28-30, 2001.

Horan, R.D. and E.H. Bulte, “Resource or Nuisance? Managing African Elephants as a Multi-Use Species”, Contributed paper, the annual conference of the European Association of Environmental and Resource Economists, Southampton, UK June 28-30, 2001.

Abler, D.G., J.S. Shortle, J. Carmichael, and R.D. Horan, “Climate Change, Agriculture, and Water Quality in the Chesapeake Bay Region”, Presented at the 2001 AERE Workshop, Bar Harbor, Maine, June 13-15, 2001.

Horan, R.D., D.G. Abler, J.S. Shortle, J. Carmichael, and L. Wang, “Probabilistic, Cost-Effective Point/Nonpoint Management in the Susquehanna River Basin”, Presented at the Integrated Decision-Making for Watershed Management Symposium, Chevy Chase, MD, January, 2001.

Abler, D.G., J.S. Shortle, J. Carmichael, and R.D. Horan, “Climate Change, Agriculture, and Water Quality in the Chesapeake Bay Region”, Presented at the AERE sessions of the ASSA meetings, New Orleans, LA, January 2001.

Bulte, E.H. and R.D. Horan, “Habitat Conservation, Wildlife Extraction, and Agricultural Expansion” Selected paper, Environment and Development Second International Conference, Stockholm, September 2000.

Horan, R.D., J. Cooper, and R. Claassen, “Environmental Risk and Agri-Environmental Policy Design.”, Selected Paper, the annual meetings of the American Agricultural Economics Association, Tampa, FL, August 2000.

Horan, R.D., J.S. Shortle, and D.G. Abler, “Green Payments for Nonpoint Pollution Control”, Principal Paper, the annual meetings of the American Agricultural Economics Association, Nashville, TN, August 8-11, 1999.

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.