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<https://uwaterloo.ca/planning/people-profiles/dawn-cassandra-parker> **Dawn Cassandra Parker, Ph.D**

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## Degrees

PhD, Agricultural and Resource Economics, University of California at Davis, July 2000. *Dissertation: "Edge-Effect Externalities: Theoretical and Empirical Implications of Spatial Heterogeneity"*  
Bachelor of Arts, Economics, Lewis and Clark College, Portland, Oregon, June 1992. *Thesis: "Dual Revenue Structures in Performing Arts Organizations"*

## Awards and Honors (2000 forward)

Outstanding Performance Award, University of Waterloo, 2014  
Biennial Medal, International Environmental Modelling and Software Association 2012  
Fellow, Global Land Project, 2018

## Relevant Professional Employment History

*Note: On full leave 7/2015-6/2016; part-time 7/2015-6/2018; on full leave 12/19-12/20; part-time 01/2021-*

Professor, School of Planning, University of Waterloo, 7/2016-.  
Director, Waterloo Institute for Complexity and Innovation, University of Waterloo, 7/2013-8/2015 and 9/2018-4/20.  
Associate Professor, School of Planning, University of Waterloo, 7/2010-6/2016.  
Associate Director, Waterloo Institute for Complexity and Innovation, University of Waterloo, 7/2010-6/2013.  
Assistant Professor, School of Planning, University of Waterloo, 7/2009-6/2010.  
Assistant Professor, Department of Computational Social Science, George Mason University, 7/2007-6/2009 (Promoted to Associate Professor with tenure as of fall, 2009 on May 6, 2009).  
Assistant Professor, Department of Environmental Science and Policy, George Mason University, 9/2006-6/2007.  
Assistant Professor, Departments of Geography and Environmental Science and Policy, George Mason University, 1/2003-8/2006.  
Post-doctoral Fellow in Modeling, Center for the Study of Institutions, Populations, and Environmental Change, Indiana University, 8/2000-12/2002; Elinor Ostrom, supervisor  
Research and Teaching Assistant, Dept. of Agricultural and Resource Economics, University of California at Davis, 9/1994-6/2000.  
Research Assistant, Federal Reserve Board of Governors, Division of Research and Statistics, Financial Structures Section. 10/92-7/94.  
Tutor, Grader, and Research Assistant, Department of Economics, Lewis and Clark College, Portland, Oregon, 8/1990-6/1992.

## Grants: PI or co-PI (G)

22. University of Waterloo VPRI "A quick-scoping portrait of heat island and green infrastructure vulnerabilities and opportunities for the City of Waterloo" (2024) D. C. Parker, PI, P. Crank and D.T. Robinson, Co-Is, Award amount: \$14,972 CAD.
21. MITACS "A quick-scoping portrait of heat island and green infrastructure vulnerabilities and opportunities for the City of Waterloo" (2024) P. Crank, PI, D.C. Parker and D. T. Robinson,

- Co-Is. Award amount: \$15,000 CAD.
20. SSHRC Partnership Development Grant “Why did the ”Missing Middle” miss the train? Exploring barriers and solutions to intensified family housing in Waterloo Region” (2022-2026) D. C. Parker, PI, M. August and S. Geobey, Co-Is. Award amount: \$189,926 CAD plus \$379,757 partner match.
  19. Environment and Climate Change Canada “Residential development impact scorecard for the environment (RISE)” (2022-2027) M. Drescher, PI, B. MacVicar, D.C. Parker, D.T. Robinson, R. Rooney, and M. Strack, Co-Is. Award amount: \$2,640,376 CAD, Co-I amount, \$456,085 CAD
  18. MITACS “Incorporating Price Expectations into Developers’ Behaviour in UrbanSim” (2022) D.C. Parker, PI. Award amount: \$15,000 CAD.
  17. CIHR/SSHRC/NSERC “Implementing Smart Cities Interventions to Build Healthy Cities (SMART) Training Platform” (2021-2027) David Ma, L. Dube, M. Suh, PIs, D.C. Parker, UW lead Co-I. Award amount: \$4,950,000 CAD. UW amount: \$148,135 CAD
  16. University of Waterloo Connection Grant “Portrait of the ION as a Young Tram: Synthesizing and disseminating ten years of research on the ION LRT and land-use intensification in Kitchener-Waterloo” (2020-2021) D.C. Parker, PI Award amount: \$7,000 CAD.
  15. NSERC CRD “Artificial Intelligence-based Tools for Fresh Produce Procurement Price Decisions as Applied to Canadian Distribution Centers.” (2019-2022) F. Karry, PI, K. Ponnambalam, D.C. Parker, L. Golab, R. Brower, Co-Is. Award amount: \$600,000 CAD.
  14. University of Waterloo International Research Partnership Development Grant “Modelling Urban Complexity - A transdisciplinary approach.” (2017-2019) D.C. Parker, PI. Award amount: \$20,000 CAD plus \$38,826 parter match.
  13. Social Science Research Council Grant 890-2013-0034 “Light Rail Transit And Core-Area Intensification: Unpacking Causal Relationships” 3/2013-3/2017 D.C. Parker, PI, J. Casello and M. Moos, Co-Is. Award amount: \$199,930 CAD plus \$392,380 partner match.
  12. Social Science Research Council Grant 869-2013-0002 “Digging into Data: MIning Relationships Among variables in large datasets from CompLEx systems (MIRACLE)” 1/2014-12/2015. D.C. Parker, PI, T. Filatova\*, T. Dawson, M. Barton, co-PIs. Award amount: UW \$125,000, Total for all applicants: US \$124,988, Dutch 99,986 euro, and UK 125,000 GBP.
  11. Social Science Research Council Grant 435-2012-1697 “Urban intensification vs. suburban flight: An integrated residential land-use and transportation model to evaluate residential land market form and function” 4/2012-3/2016. D.C. Parker, PI, J. Casello, Co-I. Award amount: \$320,521 CAD.
  10. National Science Foundation Grant 0813799 (Dynamics of Coupled Natural-Human Systems) “Collaborative Research: Spatial Land-Use Change and Ecological Effects (SLUCE): Interactions of Exurban Land Management and Carbon Dynamics” 9/2008-2/2013. D. Brown, (PI); W. Currie, J. Nassauer, S. Page, R. Riolo (Co-PIS) U. Michigan); D.C. Parker (PI), George Mason University. Award amount: \$1,496,359; GMU share: \$330,293.
  9. National Science Foundation Grant BCS-0527471 (Human and Social Dynamics) “Agent-Based Dynamics of Social Complexity: Modeling Adaptive Behavior and Long-Term Change in Inner Asia” 1/2006-6/2009. C. Cioffi-Revilla, PI; D.C. Parker, S. Luke, J. D. Rogers, and W. Fitzhugh, co PIs. Award amount: \$749,809.00; GMU share: \$580,000.
  8. Chesapeake Watershed Cooperative Ecosystem Studies Unit/National Park Service “Development of a spatially explicit participatory model to explore anthropogenic off-site threats on rare aquatic resources of the Potomac Gorge” 8/2005-12/2010. D.C. Parker, PI; S. Crate and R.C. Jones, co-PIs. Award amount: \$130,000.
  7. Chesapeake Watershed Cooperative Ecosystem Studies Unit/National Park Service “Managing the impacts of surrounding land uses on the rare biotic resources of the Potomac Gorge” 8/2005-5/2006. D.C. Parker, PI; S. Crate, co-PI. Award amount: \$11,000.
  6. National Science Foundation grant 0414565, “Collaborative Research: Land Use and Carbon Sequestration in Eastern Deciduous Forests: Complex Interactions Between Human Activities and

- Ecosystem Processes;" 8/2004-7/2008. (Geography and Regional Science, Ecosystems, and EP-SCOR programs) A. Hessel (PI), W. Peterjohn, and R. Thomas (Co-PIs), West Virginia University; D.C. Parker (PI), George Mason University. Award amount: \$355,087; GMU share: \$95,969.
5. Provost's Summer Research Grant, George Mason University, 2004. Award amount: \$4,000.
  4. Giannini Foundation Research Grant, "Evolution of Central Valley Organic Agricultural Landscapes," 6/1999. Joint with J. Wilen and K. Klonsky. Award amount: \$10,000.
  3. Public Interest Research Program Putah Bioregion Grant, "An Investigation of Spatial Configurations in Organic Agriculture," 7/1998. Award amount: \$2,000 (approx)
  2. Jastro-Shields Grant, "Spatial Mitigation of Edge Effect Externalities," 7/1998. Award amount: \$4,500 (approx)
  1. Giannini Foundation Research Grant, "Buffer Zones in Agriculture," 6/1997. Joint with J. Wilen and K. Klonsky. Award amount: \$10,000.

### Additional Research Activities and Subcontracts

- 3/2020-2/2021 Collaborator: "Implementing Smart Cities Interventions to Build Healthy Cities". CIHR Training Grant: CIHR-NSERC-SSHRC Healthy Cities Research Training Platform (HCRI) - LOI.
- 5/2019-12/2020 Co-Investigator: "Cycling Infrastructure and Its Relationship to Residential Property Prices". City of Kitchener, B. Doucet, PI.
- 1/2019- Advisory Board Member, Sloan project on ABM modeling of distributed solar adoption, C. B. Sims, PI.
- 7/2017- Compute Canada Resource Allocation Grant, renewed twice to D. Parker (Hosts CoMSES.net)
- 07/11- Collaborator/consultant "CDI-Type II: GLOBE: Evolving New Global Workflows for Land Change Science" US NSF, Erle Ellis, PI.
- 07/11-7/2012 Collaborator/consultant "A regional IT-based platform for bringing resource needs and land-based resource production together" ERA Net WoodWisdom / Bioenergy (EU), Christine Fuerst, PI.
- 2/07-1/08 CIMMYT/Borlaug foundation LEAP fellowship to Maction Komwa "Exploring Cropping Choices and Their Impact on Land use in Uganda: Integrating Household Survey and GIS Data into a Simulation Model"
- 2/06-6/06 Collaborative Research Agreement "Agent-based modeling of sustainable resource use (Uganda)," with T. Berger, P. Schreinemachers, and M. Komwa.
- 5/05-8/05 Collaborator/Consultant, International Food Policy Research Institute "Uganda Strategic Criteria for Rural Investments in Productivity: Spatial analysis of production systems," with M. Komwa, S. Wood, and T. Benson.
- 5/05-12/06 Steering Committee Member, NSF Research Coordination Network Grant: "Biodiversity Conservation in Dynamic Landscapes," S. Andelman, PI.
- 8/04 - External consultant, NSF Biocomplexity Grant: "Large lake ecosystems: Modeling interactions among human, biological, and physical processes," The Ohio State University, D. Culver, PI.
- 1/04- Collaborator, Macaulay Institute grant: "Comparative Agent-Based Modelling of Territorial Resource Allocation Processes" N. Gotts, Macaulay Institute (PI).
- 1/01 to 12/03: Senior Personnel, NSF Biocomplexity Grant: "Biocomplexity in Linked Bioecological-Human Systems: Agent-Based Models of Land Use Decisions and Emergent Land-Use Patterns," Indiana University, E. Ostrom, Principal Investigator.

### Peer-reviewed Journal Articles (Published and in review), J (\* denotes advisee/student author)

41. "Causal identification of transit-induced property value uplift in Canada's Waterloo Region: A spatio-temporal difference-in-differences method application", Huang, Y.\*, Parker, D. C., Babin, R.\* and Kong, F. (2024) *Cities* (145) 104676 <https://www.sciencedirect.com/science/article/abs/>

pii/S0264275123004882

40. "Exploring the impact of developer expectations on their development decisions", Valaei Sharif, S.\*, Parker, D. C., Tsiakopoulis, T. and Waddel, P. (2023) *Journal of Risk and Financial Management* 16(10) 446 (Special issue: Shocks, Public Policies and Housing Markets) <https://doi.org/10.3390/jrfm16100446>
39. "Estimating household demand for transit-oriented development: A two-stage hedonic analysis in Kitchener-Waterloo, Canada", Y. Huang\* D.C. Parker, and P. Anglin (2023) *Environment and Planning B: Urban Analytics and City Science*. <https://journals.sagepub.com/doi/10.1177/2399808323118061>
38. "AI and the transformation of social science research", I. Grossmann, M. Feinberg, D. C. Parker, N. A. Christakis, P. E. Tetlock, and W. A. Cunningham (2023) *Science* (380) 6605 <https://doi.org/10.1126/science.adi1778>
37. "Why did the "Missing Middle" miss the train? An actors-in-systems exploration of barriers to intensified family housing in Waterloo Region, Canada", Parker, D. C., Valaei Sharif, S.\*, and Webber, K.\* (2023) *Land* (12) 434 <https://doi.org/10.3390/land12020434>
36. "From an agent-based laboratory to the real world: Effects of "neighborhood" size on urban sprawl", Sun, S.\*, Parker, D. C., and Brown, D. G.(2023) *Computers, Environment and Urban Systems* (99) 101889 <https://doi.org/10.1016/j.compenvurbsys.2022.101889>
35. "An Overview of Fractal Geometry Applied to Urban Planning", F. Jahanmiri\* and D.C. Parker (2022) *Land* (11) 4 <https://doi.org/10.3390/land11040475>
34. "Ten facts about land systems for sustainability", P. Meyfroidt, A. de Bremond...D.C. Parker... (+46 authors) (2022) *Proceedings of the National Academy of Sciences* (119) 7 <https://doi.org/10.1073/pnas.2109217118>
33. "Identifying latent demand for transit-oriented development neighbourhoods: Evidence from a mid-sized urban area in Canada", Y. Huang\* D.C. Parker, and L. Minaker (2021) *Journal of Transport Geography* <https://www.sciencedirect.com/science/article/abs/pii/S0966692320310176?via%3Dihub>
32. "An iterative process to construct an interdisciplinary ABM using MR POTATOHEAD: An application to Housing Market Models in touristic areas", E. Innocenti, C. Detotto, C. Idda, D. C. Parker, D. Prunetti. (2020) *Ecological Complexity*, 44.
31. "One Size Does Not Fit All': A Roadmap of Purpose-Driven Mixed-Method Pathways for Sensitivity Analysis of Agent-Based Models ", Ligmann-Zielinska, A., Siebers, P-O., Magliocca, N., Parker, D. C., Grimm, V., Du, J., Cenek, M., Radchuk, V., Arbab, N. N., Li, S., Berger, U., Paudel, R., Robinson, D. T., Jankowski, P., An, L. and Ye, X, (2020) *Journal of Artificial Societies and Social Simulation* 23 (1) 6 doi:10.18564/jasss.4201.
30. "A prototype cloud-based reproducible data analysis and visualization platform for outputs of agent-based models ", Jin, Xiongbing, Kirsten Robinson, Allen Lee, J. Gary Polhill, Calvin Pritchard, and Dawn C. Parker, (2017) *Environmental Modelling and Software* 96. 172-180.
29. "Land system science and sustainable development of the earth system: A global land project perspective", Verburg, P. H., Crossman, N., Ellis, E. C., Heinimann, A., Hostert, P., Mertz, O., Nagendra, H., Sikor, T., Erb, K.-H., Golubiewski, N., Grau, R., Grove, M., Konaté, S., Meyfroidt, P., Parker, D. C., Chowdhury, R. R., Shibata, H., Thomson, A. and Zhen, L., (2015) *Anthropocene* 12. 29-41.
28. "The complexities of agent-based modelling output analysis", J. S. Lee, T. Filatova \*, A. Ligmann-Zilinska, B. Hassani-Mahmooei, F. Stonedahl, I. Lorscheid, A. A. Voinovv, J. G. Polhill, Z. Sun, and D. C. Parker (2015) *Journal of Artificial Societies and Social Simulation*, 18(4).

27. "Ecosystem services for connecting actors: lessons from a symposium", P. Opdam, C. Albert, C. Fürst, A. Grêt-Regamey, J. Kleemann, D. Parker, D. La Rosa, K. Schmidt, G. B Villamor, and A. Walz (2015) . *Change and Adaptation in Socio-Ecological Systems*, 2 (1), 1-7.
26. "'Standardized and transparent model description for agent-based models – current state and ways ahead" Birgit Müller, S. B., Carsten M. Buchmann, Luís de Sousa, Gunnar Dressler, Jürgen Groeneveld, Christian J. Klassert, Quang Bao Le, James D.A. Millington, Henning Nolzen, Dawn C. Parker, J. Gary Polhill, Maja Schlüter, Jule Schulze, Nina Schwarz, Zhanli Sun, Patrick Taillandier, and Hanna Weise (2014) *Environmental Modelling and Software*, 55, 156-163.
25. "Exurban residential household behaviors and values: Influence of parcel size and neighbors on carbon storage potential" \*Visscher, R. S., Nassauer, J. I., Brown, D. G., Currie, W. S., and D. C. Parker (2014) *Landscape and Urban Planning*, 132(0), 37-46. doi: <http://dx.doi.org/10.1016/j.landurbplan.2014.08.004>.
24. "Integrating micro-scale timbering events and decision-making into landscape models using logistic and multilevel regression (2014) Donahoe\*, S., D. C. Parker, B. Kronenfeld, and P. Ballint. *Forest Science*, 60(5), 962-972. doi: <http://dx.doi.org/10.5849/forsci.13-061>.
23. "Quantifying spatial-temporal change in land-cover and carbon storage among exurban residential parcels" Huang, Q.\*, D.T. Robinson, and D. C. Parker (2014) *Landscape Ecology*, 29(2), 275-291.
22. "A Review of Urban Residential Choice Models Using Agent-based Modeling" Huang, Q\*., D. C. Parker, T. Filatova\*, and S. Sun\*. (2014) *Environment and Planning B*, 41(4), 661 – 689. doi: 10.1068/b120043p.
21. "Market Impacts on Land-Use Change: An Agent-Based Experiment" (2014) S. Sun\*, D. C. Parker, Q. Huang\*, T. Filatova\*, D. Robinson, R. Riolo, M. Hutchinson and D. Brown. *Annals of the Association of American Geographers* 104(3), 460-484.
20. "Towards decision-based global land use models for improved understanding of the Earth system" (2013) Rounsevell, M.D.A., A. Arneth, P. Alexander, D.G. Brown, N. de Noblet-Ducoudré, E. Ellis, J. Finnigan, K. Galvin, N. Grigg, I. Harman, J. Lennox, N. Magliocca, D. C. Parker, B.C. O'Neill, P.H. Verburg, and O. Young. *Earth Systems Dynamics* 4, 875-925.
19. "Effects of agent heterogeneity in the presence of a land-market: a systematic test in an agent-based laboratory" (2013) Q. Huang\*, D. C. Parker, S. Sun\* and T. Filatova\*. *Computers, Environment, and Urban Systems* 41, 188-203.
18. "Spatial agent-based models for socio-ecological systems: challenges and prospects" (2013) T. Filatova\*, P. Verburg, D. C. Parker and C. A. Stannard. *Environmental Modelling and Software*, 45, 1-7.
17. "Effects of land markets and land management on ecosystem function: A framework for modelling exurban land-change" (2013) D. T. Robinson, S. Sun\*, M. Hutchins, R. L. Riolo, D. G. Brown, D. C. Parker, T. Filatova\*, W. S. Currie, and S. Kiger. *Environmental Modelling and Software*, 45, 129-140.
16. "The implications of skewed risk perception for a Dutch coastal land market: insights from an agent-based computational economics model" (2011) T. Filatova\*, D. Parker, and A. van der Veen. *Agricultural and Resource Economics Review* 40 (3) 405–423.
15. "The HIV/AIDS-Associated Dietary and Work Beliefs and Practices in the Mayuge District of Southeastern Uganda" (2010) M.K. Komwa\*, K.H. Jacobsen, and D.C. Parker. *Journal of Health, Population and Nutrition* 32 (1):76-85.
14. "An Overview of Computational Modeling in Agricultural and Resource" (2009) J. Nolan, D.C. Parker, G.C. van Kooten, and T. Berger *Canadian Journal of Agricultural Economics*. 57(4) 417-429.

13. "Land market interactions between heterogeneous agents and a heterogeneous landscape—tracing the macro-scale effects of individual trade-offs between environmental amenities and disamenities" (2009) T. Filatova\*, A. van der Veen, and D.C. Parker. *Canadian Journal of Agricultural Economics*. 57(4) 431-457.
12. "A qualitative study of the impact of HIV/AIDS on agricultural households in southeastern Uganda" D.C. Parker, K.H. Jacobsen, and M.K. Komwa\* (2009) *International Journal of Environmental Research and Public Health*. 6(8) 2113-2138.
11. "Agent-Based Land Markets: Agents' Pricing Behavior, Land Prices and Urban Land Use Change" (2009) T. Filatova\*, D.C. Parker, and A. van der Veen. *Journal of Artificial Societies and Social Simulation*. 12(1) 3.
10. "A conceptual design for a bilateral agent-based land market with heterogeneous economic agents" (2008) D.C. Parker and T. Filatova\*. *Computers, Environment, and Urban Systems* 32(6) 454-463.
9. "Case studies, cross-site comparisons, and the challenge of generalization: Comparing agent-based models of land-use change in frontier regions" (2008) D.C. Parker, B. Entwisle, E. Moran, R. Rindfuss, L. Van Wey, S. Manson, L. Ahn, P. Deadman, T. Evans, M. Linderman, S. M. Mussavi\*, and G. Malanson. *Journal of Land Use Science* 3(1) 41-72.
8. "Land Use Change: Complexity and Comparisons" (2008) R.R. Rindfuss, B. Entwisle, S.J. Walsh, L. An, N. Badenoch, D.G. Brown, P. Deadman, T.P. Evans, J. Fox, J. Geoghegan, M. Gutmann, M. Kelly, M. Linderman, J. Liu, G.P. Malanson, C.F. Mena, J.P. Messina, D.C. Parker, D.T. Robinson, Y. Sawangdee, P. Verburg, and G. Zhong. *Journal of Land Use Science* 3(1) 1-10.
7. "Using the ODD protocol for comparing three agent-based social simulation models of land use change" (2008) J. G. Polhill, D.C. Parker, D. Brown, and V. Grimm. *Journal of Artificial Societies and Social Simulation* 11(2-3) *Proceedings issue of Model to Model 2007*
6. "Complexity, Land-Use Modeling, and the Human Dimension: Fundamental Challenges for Mapping Unknown Outcome Spaces" (2008) D.C. Parker, A. Hessel, and S. C. Davis. *Geoforum* 39(2) 789-804. *Special issue "Biocomplexity in Coupled Human-Natural Systems: The Study of Population-Environment Interactions"*.
5. "Revealing 'Space' in Spatial Externalities: Edge-Effect Externalities and Spatial Incentives" (2007) D.C. Parker. *Journal of Environmental Economics and Management* 54(1) 84-99.
4. "Comparison of Empirical Methods for Building Agent-Based Models in Land-Use Science" (2007) D. Robinson, D. Brown, D.C. Parker, P. Schreinemachers, M. Janssen, M. Huigen, H. Wittmer, N. Gotts, P. Promburom, E. Irwin, T. Berger, F. Gatzwiller, and C. Barnaud. *Journal of Land-Use Science* 2(1) 31-55.
3. "The geography of market failure: Edge-effect externalities and the location and production patterns of organic farming" (2007) D.C. Parker and D. Munroe. *Ecological Economics* 60(4) 821-833.
2. "Measuring Pattern Outcomes in an Agent-Based Model of Edge-Effect Externalities Using Spatial Metrics" (2004) D.C. Parker and V. Meretsky, *Agriculture, Ecosystems, and Environment* 101(2-3), 233-250.
1. "Multi-Agent Systems for the Simulation of Land Use and Land Cover Change: A Review" (2003) D.C. Parker, S. Manson, M. A. Janssen M. Hoffmann, and P. Deadman. *Annals of the Association of American Geographers* 93(2), 314-337.

### Peer-Reviewed Book Chapters

8. "An economic perspective on agent-based models of land-use and land-cover change" (2014) Parker, D. C. In *Oxford Handbook of Land Economics*, J. Duke and J. Wu, eds. Oxford University Press.
7. "Do land markets matter? A modeling ontology and experimental design to test the effects of land markets for an agent-based model of ex-urban residential land-use change" (2012) Parker, D. C., D. Brown, T. Filatova, R. Riolo, D. T. Robinson, and S. Sun. In *Agent-based Models of Geographical Systems*, A. Heppinstal, A. Crooks, M. Batty and L. See, eds, pp 525-542. Springer.
6. "Multi-Agent Systems for the Simulation of Land Use and Land Cover Change: A Review" (2010) In *Computational Social Science* N. Gilbert, ed. Sage Publications (Reprint of 2003 Annals article)
5. "Illustrating a new 'conceptual design pattern' for agent-based models of land use via five case studies—the MR POTATOHEAD framework" (2008) D. C. Parker, D. G. Brown, J. G. Polhill, P. J. Deadman, and S. M. Manson. In *Agent-Based Modelling in Natural Resource Management*, A. L. Paredes and C. H. Iglesias, eds, pp 29-62. Valladolid, Spain.
4. "Effects of land markets on competition between innovators and imitators in land use: results from FEARLUS-ELMM" (2008) J. G. Polhill, D. C. Parker, and N. Gotts. In *Social Simulation Technologies: Advances and New Discoveries*, C. Hernandez, K. Troitzsch and B. Edmonds, eds, pp 81-97. Information Science Reference, Hershey, PA.
3. Contributor, chapter "Modelling land-use and land-cover change", P. Verburg et al. In *Land-use and Land-cover Change: Local Processes, Global Impacts* (2006) E. Lambin and H. Geist, eds. pp. 117-135. Springer Berlin Heidelberg, New York.
2. "Integration of Geographic Information Systems and Agent-Based Models of Land Use: Challenges and Prospects" (2005) D.C. Parker. In *GIS, Spatial Analysis and Modeling* D. Maguire, M. Goodchild and M Batty, Eds. pp. 403-422. ESRI press, Redlands, CA. Editor reviewed.
1. "Modeling Land-use/Land-cover Change: Exploring the Dynamics of Human-environment Relationships" (2005) T. Evans, D. Munroe, and D.C. Parker. In *Seeing the Forest and the Trees: Human-Environment Interactions in Forest Ecosystems* E. Moran and E. Ostrom, Eds. pp 187-213. MIT press, Cambridge, MA.

### Peer-reviewed Conference Proceedings

18. "Modelling the impact of accessibility to Safe Injection Sites for People Who Inject Drugs on site usage and opioid deaths", Valaei Sharif, S.\*, Parker. D. C., (2023, June 20). Proceedings of the 2023 International Conference on Computational Urban Planning and Urban Management (CUPUM), Montreal, Canada.
17. "Why did the "Missing Middle" miss the train? Exploring barriers to intensified family housing in Waterloo Region, Canada", Parker. D. C., Webber, K. W.\*, and Valaei Sharif, S.\* (2022, November 3). Proceedings of the 2022 American Collegiate Schools of Planning Conference, Toronto, Canada.
16. "Incorporating price expectations into agent-based representations of land developer decision models", Parker. D. C., Valaei Sharif, S.\*, Waddel, P., and Tsiakopoulis, T. (2022, September 14). Proceedings of the Social Simulation Conference: Promoting Social Simulation and Computational Social Science, Milan.
15. "Transit-Induced Commercial Gentrification? Business owners' perspectives of neighbourhood change in Kitchener-Waterloo", K. Webber\* and D.C. Parker. Proceedings of the 2021 Association of Collegiate Schools of Planning Annual Meeting, Oct. 7-8 and 21-23, 2021: 709.

14. "Evaluating Transit Accessibility Impacts on Transit Choice in the Region of Waterloo," D. Feng\*, C. Bachman, and D.C. Parker (2020) Canadian Transportation Research Forum Proceedings 2020.
13. "Retail and Light Rail: Investigating the relationship between transit-induced intensification and retail gentrification in Waterloo Region" K. Webber\* and D. C. Parker. Proceedings of the 2020 Association of Collegiate Schools of Planning Annual Meeting, 5-8 Nov. 2020: 1043.
12. "The effect of bicycle infrastructure on residential property values in a midsized Canadian city" D. C. Parker, Y. Huang\*, and D. Feng\*. Proceedings of the 2020 Association of Collegiate Schools of Planning Annual Meeting, 5-8 Nov. 2020: 1047.
11. "MR POTATOHEAD: Property market edition-development of a common description template and code base for agent-based land-market models" \*, D. C. Parker, A. Carro, C. Detotto, T. Filatova, J. Ge, Y. Huang\*, C. Idda, N. Magliocca, J. G. Polhill, and D. Prunetti.(2019) *Proceedings of the 2019 Social Simulation Conference*
10. "Lessons learned replicating the analysis of outputs from a social simulation of biodiversity incentivisation" J. G. Polhill, L. Milazzo, T. D. Dawson, A. Giamona, and D. C. Parker (2015) *Proceedings of Social Simulation Conference 2015, Groningen (NL), Wander Jaeger, ed..*
9. "Towards metadata standards for sharing simulation outputs" J. G Polhill., T. D. Dawson, D. C. Parker, X. Jin\*, K. Robinson\*, T. Filatova\*, A. A. Voinovv, M. Barton, E. Pignotti, and E. Edwards (2014) . In *Proceedings of Advances in Computational Social Science and Social Simulation (ESSA 2014), Barcelona, Spain*, Miguel, Amblard, Barceló, and Madella, eds.
8. "The implications of alternative developer decision-making strategies on land-use and land-cover in an agent-based land market model" (2012) Parker, D. C., S. Sun, T. Filatova, N. Magliocca, Q. Huang, D. Brown, and R. Riolo. In *Proceedings of the 2012 International Congress on Environmental Modelling and Software: Managing Resources of a Limited Planet: Pathways and Visions under Uncertainty, Sixth Biennial Meeting, Leipzig, Germany* R. Seppelt, A.A. Voinov, S. Lange, D. Bankamp, eds.
7. "Integrating land markets, land management, and ecosystem function in a model of land change" (2010) Robinson, D. T., T. Filatova, S. Sun, R. Riolo, D. Brown, D. Parker, M. Hutchins, W. S. Currie, and J. I. Nassauer. 2010. In *Proceedings of the 2010 International Congress on Environmental Modelling and Software 'Modelling for Environment's Sake' Ottawa, Ontario, Canada* D. A. Swayne, W. Yang, A. A. Voinov, A. Rizzoli, T. Filatova, eds.
6. "Introducing Preference Heterogeneity into a Monocentric Urban Model: an Agent-Based Land Market Model" (2010) T. Filatova\*, A. van der Veen, and D.C. Parker. In *Proceedings of the Second World Congress on Social Simulation* Jul. 14-18, 2008, Fairfax, VA.
5. "Why does individual risk perception matter in land use modeling? Combining survey data and agent-based land market model" (2009) T. Filatova\*, A. van der Veen, and D.C. Parker. In *Proceedings of the 6th Conference of the European Social Simulation Association* University of Surrey, Guildford, UK, September 14-18. Guildford, UK.
4. "Agent-based land markets: heterogeneous agents, land prices and urban land use change" (2008) T. Filatova\*, D.C. Parker, and A. van der Veen. In *Proceedings of the 4th congress of the European Social Science Association (ESSA '07)* Sept. 10-15, Toulouse, France," F. Amblard, ed. pp. 263-75.
3. "Agent-based modeling simulation of social adaptation and long-term change in Inner Asia" (2007) C. Cioffi-Revilla, S. Luke, D. C. Parker, J. D. Rogers, W. W. Fitzhugh, W. Honeychurch, B. Frohlich, P. DePriest, C. Amartuvshin. In *Advancing Social Simulation: The First World Congress* S. Takahashi, D. Sallach and J. Rouchier Eds. pp. 189-199. Springer, Tokyo.

2. "Introducing Land Markets to an Agent Based Model of Land Use Change: A Design." (2005) J. Gary. Polhill, D. C. Parker, and N. M. Gotts. 2005. In *Proceedings of ESSA 2005: Representing Social Reality* Koblenz-Landau University, Sept. 5-9, G. Troitzsch, ed pp. 150-157.
1. "Size Distributions of Land Holdings in an Agent-based Model of Rural Land Use" (2004) N. M. Gotts and D. C. Parker. In *Proceedings of the Agent 2004 Conference on "Social Dynamics: Interaction, Reflexivity and Emergence,"* Chicago, IL, Oct. 7-9, 2004. C. Macal, D. Sallach, and M. North, eds, pp. 615-632. Argonne National Laboratories, Chicago.

### Other Peer-Reviewed Publications

4. "Agent-based modeling " D. C. Parker and D.T. Robinson and (2017) In *The International Encyclopedia of Geography: People, the Earth, Environment, and Technology*, D. Richardson, ed. Wiley.
3. "Meeting the Challenge of Complexity: Proceedings of the Special Workshop on Agent-Based Models of Land-Use/Land-Cover Change" (2002) CIPEC/CSISS joint publication. CIPEC Collaborative Report No. 3: D.C. Parker, T. Berger, and S. Manson, eds. (145 pages).

Chapters in "Meeting the Challenge of Complexity: "ABM/LUCC: Can we meet the challenge of complexity?," (D.C. Parker, p. 4-5); "Potential strengths and appropriate roles for ABM/LUCC models," (D.C. Parker, S. Manson, and T. Berger, p. 6-12); "Software Tools and Communication Issues," (R. Najlis, M. Janssen, and D.C. Parker, p. 17-30); "Introduction to Specific Examples of Research," (T. Berger and D.C. Parker, p. 37-44); "LUCIM: An Agent-Based Model of Rural Land-Owner Decision-Making in South-Central Indiana" (D.C. Parker, p. 72-77); "Synthesis and Discussion of Ongoing Research," (D.C. Parker and T. Berger, p. 87-96).

2. "Agent-based Models of Land-Use/Land-Cover Change: Report and Review of An International Workshop" (2002) LUCC Report # 6: D.C. Parker, T. Berger, and S. Manson, eds. (124 pages)<sup>1</sup>
1. "Landscape Outcomes in a Model of Edge-Effect Externalities: A Computational Economics Approach" (1999) Santa Fe Institute Working Paper 99-07-051 E. Editor reviewed.

### Peer-reviewed/Selected Conference Papers and Extended Abstracts

19. "Towards automated provenance collection for experimental runs of agent-based models", Salt, D., Polhill, J. G., Musk, C., Milazzo, L, Parker, D. C., Macleod, K. Social Simulation Conference, Glasgow, Scotland, 4-8 Sept. 2023.
18. "The RISE scorecard—a new tool to incentivize provision of blue-green infrastructure on private developments", Parker, D. C., Drescher, M., Ahmed, H.\*, Bramanis, E.\*, MacVicar, B., Robinson, D. T., Rooney, R., Skoyles, A., and Strack, M. (2022, July 5) 2022 Biennial Conference of the International Environmental Modelling and Software Association, Brussels.
17. "A reusable, extensible Netlogo building block of land and housing markets in a touristic region", Dettoto, C., Idda, C., Innocenti, E., Ling, Y., Prunetti, D., and Parker, D. C. (2022, July 6) 2022 Biennial Conference of the International Environmental Modelling and Software Association, Session on Reusable Building Blocks in Agent-Based Model, Brussels.
16. "Employing the Characterization and Parameterization Framework (CAP) to Develop an Empirical Innovation-Diffusion Agent-Based Model of Green Infrastructure Adoption on Private Residential Yards" Ahmed. H and Parker. D. C. (2022) 2022 Biennial Conference of the International Environmental Modelling and Software Association, Brussels.
15. "MIRACLE: Cloud-based reproducible data analysis and visualization for outputs of agent-based models"

<sup>1</sup>This is a shorter version of the CIPEC/CSISS collaborative report

- Jin, X\*, K. Robinson, A. Lee, G. Polhill, C. Pritchard, and D. C. Parker. Presented at the GIScience 2016 workshop on "Rethinking the ABCs: Agent-based models and complexity science in the age of Big Data, CyberGIS, and Sensor Networks", 27 Sept. 2016, Montreal, QC, Canada.
14. "The implications of land-market representation for the interpretation of empirical land-use change models" D. C. Parker, T. Filatova\*, Y. Huang\*, Q. Huang\*, and X. Jin\*. Invited paper presented at the "Advancing Metropolitan Modeling" workshop, Riverside, CA, Jan. 15-17 2015, A. Anas, organizer.
  13. "Why does individual risk perception matter in land use modeling? Combining survey data and agent-based land market model" T. Filatova\*, A. van der Veen, and D.C. Parker. Plenary paper, 2009 European Social Simulation Association conference, September 14-18.
  12. "Using the ODD protocol for comparing three agent-based social simulation models of land use change" J. G. Polhill, D.C. Parker, D. Brown, and V. Grimm. Presented at Model to Model 2007, Marseilles, France, Mar. 15-16,2007.
  11. "Agent-based dynamics of social complexity: Modeling Adaptive Behavior and Long-Term Change in Inner Asia" C. Cioffi-Revilla, S. Luke, D. C. Parker, J. D. Rogers, W. W. Fitzhugh, W. Honeychurch, B. Frohlich, P. DePriest, N. Bazarsad. Proceedings of NAACSOS 2006, Notre Dame, IN, USA, June 22-23, 2006.
  10. "Agent-Based Modeling to Explore Linkages Between Preferences for Open Space, Fragmentation at the Urban-Rural Fringe, and Economic Welfare." D.C. Parker. Proceedings of the workshop "The role of open space and green amenities in the residential move from cities," INRE, Dijon, France, Dec. 13-16, 2005.
  9. "Modelling Size Distributions of Rural Land Holdings in Scotland" N. M. Gotts and D. C. Parker. Proceedings of the Second Conference of the European Social Simulation Association, (ESSA 04), Valladolid, Spain, September 16-19, 2004.
  8. "The Varied Impact of Greenways on Residential Property Values in a Metropolitan, Micropolitan, and Rural Area: The Case of the Catawba Regional Trail " D. K. Munroe, D. C. Parker, and H. S. Campbell Jr. Selected Paper, 2004 AAEA Annual Meeting, Denver, CO. August 1-4, 2004.
  7. "Spatial Tests for Edge-Effect Externalities and External Scale Economies in California Certified Organic Agriculture" D. C. Parker and D. K. Munroe. Selected Paper, 2004 AAEA Annual Meeting, Denver, CO. August 1-4, 2004.
  6. "Linking Local Spatial Externalities and Urban Sprawl: A Comparison of Two Agent-Based Cellular Automaton Modeling Approaches" D.C. Parker and G. Caruso. Presented at the North American Association for Computational Social and Organizational Science, Pittsburgh, PA June 22-25, 2003.
  5. "Using multi-agent system models to link spatial externalities and landscape fragmentation: A 'pseudo-inductive' analysis" D.C. Parker and R. Najlis. Presented at the Framing Land Use Dynamics conference, Utrecht University, Netherlands, April 16-18, 2003.
  4. "Measuring Emergent Properties of Agent-based Landuse / Landcover Models Using Spatial Metrics" D.C. Parker, T. Evans, and V. Meretsky. Seventh Annual Conference of the International Society for Computational Economics, June 28-29th, 2001, New Haven, CT.
  3. "Hierarchical Attitude Formation and Perceptions of Food Risks: An Application to Consumer Perceptions of B.S.T. Treated Milk" D.C. Parker and D. Jolly. Selected paper, 2000 AAEA Annual Meetings, Tampa, Florida, July 30-August 2.
  2. "Edge-Effect Externalities and Location Incentives: The Case of California Certified Organic Farmers"

D.C. Parker. Selected paper, 2000 WAEA Annual Meetings, Vancouver, CA June 29-July 1.

1. "Economic Impacts of Edge Effects Externalities on Land Use Decisions" D.C. Parker. Selected paper, 1998 AAEA Annual Meetings, Salt Lake City, Utah August 2-5.

### Reports, and Misc. Publications

12. "Specification conceptuelle MR POTATOHEAD -Property Market Edition du systeme complexe d'un territoire touristique a deux marches: application au territoire corse" (2023) E. Innocenti, C. Detotto, C. Idda, D. C. Parker, and D. Prunetti. Universite de Corse - UMR CNRS 6240 LISA. ESTATE – Etude de la SouTenAblite des recompositions TErritoriales de la Corse, pp.192-213, 2023, 978-2-911285-53-0. <https://doi.org/10.58110/estate-bg32>
11. "Cycling Infrastructure and Its Relationship to Residential Property Prices" (Nov. 2020) B. Doucet D.C. Parker, E. McDougall, Y. Huang, and D. Feng. Report prepared for the Cities of Kitchener, Waterloo and Cambridge and the Region of Waterloo.
10. "Current status, challenges and ways forward in modelling human-environment interactions in land systems". Z. Sun, D. Mueller, B. Mueller, D.C. Parker, and M. Bakker. (7/2020) GLP Blog: <https://glp.earth/news-events/blog/current-status-challenges-and-ways-forward-modelling-human-environment-interactions>.
9. "Final white paper: MIRACLE project (MIning Relationships Among variables in large datasets from ComplEx systems)" (2019) D.C. Parker, M. J. Barton, T. Filatova, J. G. Polhill, X. Jin, A. Lee, JS. Lee, K. Robinson Wright, and C. Pritchard. Digging into Data grant program.
8. "Central Transit Corridor Monitoring Program, Kitchener-Cambridge-Waterloo, Baseline Monitoring Report Waterloo, ON, Canada, Region of Waterloo." (November 2015) Lead authors: Parkin, M., Stubbs, D., Hang, V.; U.W contributors: Parker, D., Casello, J., Moos, M., Jin, X., Babin, R., Fard, P., Huang, Y., Pi, X., Tamer, F. and Yeung, K. Region of Waterloo Report to Council.
7. "Green Complexity Economics: Modeling Global-Scale Environmental, Resource, and Ecological Challenges" (May 2011) D.C. Parker and T. Homer-Dixon. *Position paper for the Institute for New Economic Thinking Bretton Woods conference.*
6. "Linking land-use change, land manager behaviour, and ecological change through agent-based land market models" (Oct. 2008) *GLP Newsletter # 4.*
5. "The effects of HIV/AIDS on household agricultural land productivity in southeastern Uganda" M. Komwa\* and D.C. Parker. (May, 2008) Research Brief 08-01-LEAP, Norman E. Borlaug Leadership Enhancement Program in Agriculture, UC Davis, Davis, CA.
4. "The interface between HIV/AIDS status, household nutrition, agricultural production, and household welfare in Uganda" D.C. Parker and M. Komwa\*. (Fall, 2007) *Global Studies Review.*
3. Entries in *The Earth's Changing Land: An Encyclopedia of Land-Use and Land-Cover Change* (2006) "Ecosystem Services" (p. 204-205), "Integrated Model" (p. 313-315), and "Tragedy of the Commons" (p. 600-601). H. Geist, ed., Greenwood Publishing Group, Westport, CT.
2. Review of "Pricing the Planet: Economic Analysis for Sustainable Development", P.H. May and R. Serôa da Motta In *Land Degradation and Development*, 12: 87-92 (2001)
1. "A Special Workshop on Agent-Based Models of Land Use" (Dec. 2001) *LUCC Newsletter # 7.*

### Invited Seminars and Presentations

"Understanding the effects of market volatility on profitability perceptions of housing market developers",

- Valaei Sharif, S.\*, Parker, D. C., Waddel, P., and Tsiakopoulos, T. (2024, Jan. 24) Real Estate Management Research Seminar Series, Toronto Metropolitan University (on line)
- “Comparing alternative price and cost estimate models to improve representation of boundedly rational land developers in land and housing market simulations”, Parker, D. C. and Valaei Sharif, S. (2023, Dec. 1) Computational and Data Sciences Seminar Series, George Mason University, Fairfax, VA (on line).
- “Understanding the effects of market volatility on profitability perceptions of housing market developers”, Valaei Sharif, S.\*, Parker, D. C., Tsiakopoulos, T. and Waddel, P. Canada Mortgage and Housing Corporation (2023, Nov. 9th) and Canadian Association for Business and Economics (2023, Nov. 30th)
- “MCCHE 2022 ” Convergence by Design seminar series,” McGill University, Nov. 2022. Invited keynote: “Viewing the Canadian housing crisis through a complex systems lens”
- “Collaborative modelling of Canadian housing and land development with CMHC and UrbanSim”, Parker, D. C. (2022, October 27). Computational Social Science Society of the America’s Conference / Policy Modelling Special Interest Group, Santa Fe, NM, USA.
- “Will households match homes? What contemporary data and models support land needs assessment”, D.C. Parker. Presented at Where do we grow from here?, Kitchener-Waterloo Association of Realtors 9 March, 2022.
- “Developing Complex Spatial, Temporal, Behavioural, and Institutional Models to Assist Policy Assessment, Design, and Negotiation for Adoption of Green Infrastructure on Private Yards”, D.C. Parker, H. Ahmed, and E. Bramanis. Keynote, 21st International Conference on Group Decision and Negotiation (GDN 2021), June 6-10 – Toronto, Canada.
- “Development of an empirical agent-based model of residential housing—from key informant interviews to two-stage regression modelling,” D.C. Parker. Baker Center Energy and Environment Forum, 15 Apr. 2021, Knoxville, TN, USA.
- “Cycling Infrastructure and Its Relationship to Residential Property Prices,” E. McDougal and D.C. Parker. Kitchener Waterloo Association of Realtors (KWAR), 8 April 2021.
- “ ‘Exciting times’ for K-W residential markets: GTH buyers, Central Transit Corridor impacts, and missing markets”. D.C. Parker. Invited keynote, Kitchener-Waterloo Association of Realtors “Housing market insights” event, 6 Nov. 2018.
- “Combining household survey data, key informant interviews, and hedonic modelling to understand housing demand in a dynamically shifting market” D. Parker. Invited presentation, Oxford Institute for New Economic Thinking, Oxford, UK, 23 April 2018; Invited Keynote, DEVS Francophones, 1 May 2018, Corsica, France.
- “Agent-based Decision Models: State of the Art, Outstanding Challenges, and a Path Forward” D. C. Parker. Invited keynote at the Geocomputation conference, Leeds, UK, 4 Sept. 2017.
- “Barriers to Progress in Agent Computing: Technical and Social” C. Barrett, S. Kimbrough, B. LeBaron, D. Parker, F. Squazzoni, and L. Tesfatsion. Invited plenary panel discussion at the International Congress on Agent Computing, Fairfax, VA, 29-30 Nov. 2016.
- “Modelling Markets Matters: Lessons from agent-based land market models” D. C. Parker. Keynote presentation, CIDE colloquium on complexity economics and policy, Mexico City, Mexico, Nov. 11, 2015.
- “The MIRACLE project: Cyberinfrastructure for visualizing model outputs D. C. Parker\*, M. Barton, T.

- Dawson, T. Filatova, X. Jin, A. Lee\*, J. Lee, L. Milazzo, C. Pritchard, J. G. Polhill, K. Robinson, and A. Voinov. Satellite session *Computational transparency in modeling complex systems*, CCS15: Conference on Complex Systems, , Sept. 30, 2015, Tempe, AZ.
- “Integration of agent-based modeling, network science, analytical models, and inductive meta-modelling for applied analysis of complex systems phenomena” D. C. Parker. Invited presentation, 7th Summer Solstice International Conference on Discrete Models of Complex Systems. The Fields Institute for Research in Mathematical Sciences, Toronto, ON, June 18, 2015.
- “Dancing the math of complex systems: An Introduction to Complexity, Emergence, and Fractals” D. C. Parker., S. Tolmie, A. Euerby, F. Jahanmiri, N. K. Mansell, D. Mansell. “Bridges” lecture series, St. Jerome’s College, Waterloo, ON Canada, 13 March, 2015
- “Hoping for a MIRACLE: Mining Relationships Among Variables in Large Datasets from Complex Systems (Digging into Data research initiative)” D. C. Parker. SSHRC Western “Big Data in the Social Sciences” Conference. London, ON, March 15, 2014.
- “Visions for a future earth: a synthesis of participant surveys” D. C. Parker (presenter) and V. Schweizer. Keynote Session, 2014 Global Land Project Open Science Meeting, Berlin, Germany, March 21, 2014.
- “Framing comments: Agent-based computational Economic (ACE) and Computable General Equilibrium (CGE) models for the analysis of environmental and resource policy” D. C. Parker. Workshop: “Ecological vs. Environmental Economics?: Promoting Better Environmental Policy-Making” hosted by the Global Environmental Governance Group, Balsillie School of International Affairs 1 May 2014.
- “My evolution as a computational social scientist: An unexpected journey down a rugged path” D. C. Parker. Presented in the University of Waterloo Graduate House Professor Pub Lecture Series, 2 April, 2013.
- “False Dichotomies: Deductive vs. Inductive Economic Analysis” D.C. Parker. Respondent comments at the “False Dichotomies: Economics and the Challenges of Our Time” Institute for New Economic Thinking Conference, Plenary Session 1, CIGI, Waterloo, Ontario, Canada, Nov. 16, 2012.
- “Do land markets matter? Exploring the effects of land market representation using agent-based models” D.C. Parker, Q. Huang, D. Robinson, T. Filatova, S. Sun, D. G. Brown and R. Riolo. ORCAS seminar series, University of Guelph, Oct. 16, 2012.
- “New methods for visualization, analysis, communication, and decision support using complex systems data” D.C. Parker, Q. Huang, D. Robinson, T. Filatova, S. Sun, D. G. Brown and R. Riolo. Keynote presentation, RegioResources 21 Conference, Dept. of Forest-, Geo- and Hydrosociences, Dresden University of Technology, Dresden, Germany, May 21-23, 2012.
- “Do land markets matter? Exploring the effects of land market representation on land-use change projections using agent-based modeling” D.C. Parker. Dept. of Geography seminar, The Ohio State University, Columbus, Ohio, 28 April 2011.
- “The challenge of linking agent-based land management and biophysical process models: Data constraints vs. process constraints” D.C. Parker. Forest People Fires Futures seminar series, Oregon State University, Corvallis, OR, 21 April 2011.
- “Exploring the significance and complexity of the impacts of land markets on land-use change models: An agent-based experiment ” D.C. Parker. CsPA seminar series, McMaster University, Hamilton, ON, 18 March 2011.
- “Pressing issues in social simulation: From building models to building science ” D.C. Parker\*. Invited

- keynote at the Multi-Agent Based Simulation session, AAMAS, Toronto, ON, 11 May 2010.
- “A first assessment of the role of land-market dynamics in agent-based land exchange models” (Full length version) D.C. Parker\*, S. Sun, D.T. Robinson, R. Riolo, T. Filatova, and D.G. Brown. Invited presentation, Resources for the Future, “Land-use seminar double feature” Washington, DC, 16 April, 2010.
- Invited discussant and panelist, workshop “Teaching of/with Agent-Based Models in the Social Sciences”, D.C. Parker\*, Paris, France, 8-9 April, 2010.
- “Representing economic mechanisms in agent-based models of socio-ecological systems: how far have we come? ” Keynote presentation, 2010 International Conference on Integrated Landscape Modeling (LANDMOD), Montpellier, France 5 February 2010.
- “Some key challenges in modeling coupled human-natural systems, illustrated through agent-based land-use modeling research” Faculty of Environment seminar series, University of Waterloo, 4 November, 2009.
- “Exploring Complex Relationships Between Land Market Activity, Landscaping Behavior, and Carbon Sequestration in Ex-Urban Landscapes” Waterloo Applied Complexity and Innovation Seminar Series, University of Waterloo, 1 Oct. 2009.
- “How Does Preference Heterogeneity Influence Land-Use Patterns via Market Interactions? Evidence from an Agent-Based Land Market Model” D.C. Parker and T. Filatova. Invited speaker presentation for workshop, *The Economics of Land-Use Change: Advancing the Frontiers*, June 25-26, 2009, Washington, DC. Jacqueline Geoghegan and Lori Lynch, co-organizers.
- “Can Agent-Based Models of Land Use Bridge the Gap between Process and Pattern Based Models? Revisited, 2009” International Institute for Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands, 24 April 2009.
- “Agent-based land market models: Towards empirical models for participatory simulation, visualization, and decision support” Responsive City seminar series, Dept. of Urban Studies and Planning, Mass. Institute of Technology, April 16, 2008.
- “Modeling endogenous land rent formation via agent-based models of land markets: three progressively complex approaches” CASA, UCL (16 July 2007); University of Leeds Centre for Spatial Analysis and Policy (18 July 2007).
- “An Introduction to Agent-Based Models of Agricultural Land Use” Keynote presentation at GRoWE symposium on Agent Based Modeling of Spatially Distributed Systems, Kansas State University, Sept. 29, 2006.
- “Using agent-based modeling to derive hypotheses relating spatial externalities, landscape fragmentation, and economic welfare” Department of Environmental and Resource Economics Seminar Series, University of Rhode Island, Nov. 4, 2005.
- “Building the Endogenous Land Market Model (ELMM): Motivation, Choices, and Remaining Challenges” Economic Research Service, USDA, Washington, DC., Oct. 25, 2005.
- “Beyond SLUDGE: Better Acronyms, Better Markets” University of Michigan Complex Systems Advanced Academic Workshop, April 15, 2005.
- “Edge-effect externalities, external scale economies, and spatial clustering: Implications for the evolution of organic farming landscapes” Outstanding Academic Women in Resource Economics seminar series, Department of Environmental and Resource Economics, University of Rhode Island, March 21, 2005.
- “Edge-Effect Externalities and the evolution of complex land-use patterns at the urban-rural fringe” Joint

Regional Research Institute and Geography Department Colloquium, West Virginia University, Oct. 8, 2004.

“Multi-Agent System Models of Land-Use: What are they, Why use them, and What can we learn?” Tool Pool–GIS and spatial statistics seminar series, International Food Policy Research Institute, Washington, DC, August 24, 2004.

“Spatial Tests for Edge-Effect Externalities and External Scale Economies in California Certified Organic Agriculture” Economic Research Service, USDA, Washington, DC., July 21, 2004.

“Linking Land Market Activity to Urban Sprawl” George Mason University Computational Social Science Seminar Series, Fairfax, VA, March 25, 2004.

“Linking Socioeconomic Behavior to Biophysical Processes via Agent-Based Models of Land Use” Environmental Studies Seminar Series, Washington and Lee University, Lexington, VA, Nov. 7, 2003.

“Agent-Based Models of Land-Use/Land-cover Change: Background, Issues, and Prospects” University of Rhode Island, Department of Environmental and Resource Economics, Nov. 2, 2001; University of Massachusetts, Amherst, Department of Resource Economics, Nov. 5, 2001.

### **Invited Workshops and Research Consultations**

“Agent-based models of social systems for complex future challenges” D.C. Parker. University of Waterloo. Math+X networking session, September 20, 2023

“Fields Institute workshop on math and climate change,” Oct. 2022. Presentation: “Climate change adaptation and mitigation tradeoffs and synergies through a cross-scale”, public/private values lens.”

Invited participant, “Open Modeling Foundation Strategic Planning Workshop 3” Virtual Host, Michael Barton, ASU, 5-7 Oct. 2020.

Advisory Board participant, “Rapid workshop on distributed solar generation” Virtual Host, C. B. Sims, University of Tennessee, 28 Sept. 2020.

Participant and Speaker: CSS 20th year summer school reunion” Santa Fe Institute, 13 June 2019. Presentation: “Modelling Markets Matters: Lessons from agent-based land market models.”

Invited Panelist, “Workshop on Borders in Public Health and Mathematical Epidemiology” Fields Institute, 24th Oct. 2019.

Visiting Scholar, University of Corsica 5/2019 and 10/2019.

Invited panelist and co-organizer, “Modelling human-environment interactions in land systems: Current status, challenges and ways forward” Innovative/Immersive session, 4th Open Science Meeting of the Global Land Project, Bern, Switzerland, 24-26th April, 2019.

Invited participant and session leader, “Design, verification, and validation of agent decision models” ABM-17 symposium, San Diego, CA, 20-22 April, 2017.

Invited participant, “Agent-Based Modeling of Land Use Change” Workshop on Climate Change Impacts and Integrated Assessment, Energy Modeling Forum” Snowmass, CO, July 23-24, 2012. Presentation: “Incorporating land markets in agent-based models.”

Invited participant, workshop “Needs and Research Requirements for Land-Change Modeling,” meeting of US National Academy of Sciences National Research Council Committee on Land Change Modeling. Chapel Hill, NC, USA, Feb. 15-16, 2012.

Invited participant, workshop “Linking models of human behaviour and decision making processes with land

system models” Lake Crackenback, NSW, Australia, 28 Nov-1 Dec. 2011. Presentation: “Representing economic mechanisms in agent-based models of socio-ecological systems: how far have we come? (Revisited)”

Invited participant, Global Land Project nodal office on Integration and Modelling workshop “The design of integrative models of natural and social systems in land-use change” Aberdeen, Scotland, 27 Feb-2 March 2008. Presentation: “Can Agent-Based Models of Land Use Bridge the Gap between Process and Pattern Based Models?”

The Macaulay Institute 20-27 July, 2007, R. Aspinall, G. Polhill, and N. Gotts, hosts.

The Ohio State University May 31-June 1, 2007, E. Irwin and D. Munroe, hosts.

Invited participant, NSF/UK E-Social Science joint workshop “Agent-based Modeling of Complex Spatial Systems” M. Goodchild and M. Batty, PIs. Santa Barbara, CA. April 14-16, 2007. Presentation: “Grounding the debate about calibration and validation of spatial agent-based models: Simple questions about complex models.”

Invited participant, NSF HSD workshop “Integrating Socioecological Sciences Through a Community Modeling Framework” M. Barton, M. A. Janssen, and L. N. Alessa, PIs. Center for Social Dynamics and Complexity, ASU, Tempe, AZ, Mar. 1-3, 2007.

Invited Participant, NIH Roadmap Initiative workshop, “Population, Land Use Change, and Health in Frontier Regions” R. Rindfuss, B. Entwisle, and S. Walsh, organizers. East-West Center, Honolulu, HI, May 17-19, 2006.

Panelist, Symposium on Spatial Modeling Carolina Population Center, UNC Chapel Hill, Oct. 26, 2005. Presentation: “Capturing Complexity through Spatial Models.”

Invited Participant: USGS Workshop on Developing a National Land-Cover Change Model Pingree Park, Colorado, Sept. 19-21, 2005.

Visiting Scholar Department of Environmental and Natural Resource Economics, University of Rhode Island. Sept. 2005-August 2006.

Externalities as a Justification for Government Intervention Liberty Fund Colloquium, Feb. 3-6, 2005.

Co-organizer (with Marco Huigen and T. Berger): Panel Discussion: Multi-Agent Models Held at the workshop Integrated Assessment of the Land Use System, Amsterdam, Netherlands Oct. 28-30, 2004.

FEARLUS project, Macaulay Land Use Research Institute Research consultation and attendance at the Workshop for Modelling Competition for Territory, July 1-9, 2004, Nick Gotts, host. Presentation: “The Role of Market Mechanisms in Agent-Based Models of Land Use.”

International Workshop on Power Laws in the Social Sciences Oct. 23-26, 2003, Center for Social Complexity, George Mason University, Claudio Cioffi, organizer.

ESRI workshop on modeling and GIS Sept. 25-26, 2003, Michael Batty, Michael Goodchild, and Ling Bian, organizers. Presentation: “Agent-Based Models of Land Use: Challenges for GIS Integration.”

SLUCE project, University of Michigan March 31, 2003, Dan Brown, host.

ZEF (Center for Development Studies,) Nov. 4-8, 2002, T. Berger, host.

Ohio State University Biocomplexity grant development Oct. 17-18, 2002, Elena Irwin, host.

Invited Participant: Biocomplexity modeling workshop Sept. 10-12, 2001, The Ohio State University, Columbus, OH.

1998 Santa Fe Institute Graduate Workshop in Economics: Computational Modeling and Complexity in Economics.

### Conference Presentations (\* denotes presenter)

- “First estimates from the RISE-Beta prototype—Projecting carbon sequestration and stormwater diversion in new residential developments ” D. C. Parker\*, Hazem Ahmed, Michael Drescher, Brandon Giura, Michael Glazyrin, Chenxi Liu, Bruce MacVicar, Derek T. Robinson, Adam Skoles, and Thiruni Thirimanne (14 May 2024) Presented in the session “Leveraging urban green space to address compound crises” Association of American Geographers 2024 Annual Meeting, Honolulu, Hawaii
- “Exploring the Emerging Canadian Network for Complex Systems,” D. C. Parker\* and Nehaniv, C. (2022, March 31) Presented at the Western Complex Systems Conference, London, ON, Canada.
- “Tracking impacts of light rail investment through a volatile housing market: Combining qualitative and quantitative methods to understand dynamic influences of demographic change and investment incentives ” D. C. Parker\*. Presented at the 2018 Association of Collegiate Schools of Planning annual conference, Buffalo, NY, Oct. 25-28th, 2018.
- “Interpreting and Modelling the Housing Market from Individual Behaviours Y. Huang.\*, D. Parker, J. Dean, J. Cook and X. Pi. Presented at the 64th Annual North American Meetings of the Regional Science Association International, Vancouver, CA, November 8-11, 2017.
- “Modelling atomic housing market agents: Conceptual and data challenges D. Parker, X. Jin, K. Yeung, R. Babin, J. Casello, Y. Huang, X. Pi, A.J. Wray, and P. Fard. Presented at the Association of American Geographers Annual Meeting, Boston, MA, 5-9 April, 2017.
- “The WARM Prototype: An agent-based integrated residential land market and transportation model to simulate impacts of light-rail transit on a medium-sized North American urban area” D. C. Parker\*, X. Jin, K. Yeung, R. Babin, J. Casello, Y. Huang, X. Pi, and P. Fard. Presented at the International Congress on Agent Computing, Fairfax, VA, 29-30 Nov. 2016.
- “Understanding land system sustainability: an empirical agent-based model of residential markets in Kitchener-Waterloo, Canada. ” Huang, Y.\*, D. C. Parker, J. Casello, X. Jin, R. Babin, V. Sullivan. Presented at the Global Land Project 3rd Open Science Meeting (GLP-OSM16) session S63 - Modelling future land use: advances and challenges, Beijing, China, 24-27 Oct. 2016.
- “A novel approach to parameterizing utility functions for agent-based market models of resource choice” D. C. Parker\* Y. Huang, R. Babin, J. Casello, X. Jin, X. Pi, and V. Sullivan. Presented at the 8th International Congress on Environmental Modelling and Software, Toulouse, France, 10-14 July 2016.
- “Investigating home buyer preferences under regional intensification: a first-stage hedonic model for an integrated land-use transport model” Babin, R.\*, D. C. Parker, A. Antanaitis, J. Casello, P. Fard, Y. Huang, X. Jin, M. Moos, E. Ogden, X. Pi, V. Sullivan, F. Tamer, J. Tran, and K. Yeung. Presented at the Association of American Geographers 2016 Annual Conference, Mar. 29-Apr. 2 2016, San Francisco, CA.
- “Linking the Social and Spatial Structures of Cities” F. Jahanmiri and D. C. Parker\*, CCS15: Conference on Complex Systems, , Sept. 28, 2015, Tempe, AZ.
- “The MIRACLE project: Tools and analysis methods for output from agent-based models of coupled human-natural systems” D. C. Parker\*, M. Barton, T. Dawson, T. Filatova, X. Jin, A. Lee, J. Lee, L. Milazzo, C. Pritchard, J. G. Polhill, K. Robinson, and A. Voinov. 2015 Joint Conference of the Applied Mathematics, Modeling and Computational Science/Canadian Applied and Industrial Mathematics

Society, June 7-12, Waterloo, On, Canada.

- “The MIRACLE project: A community library to archive and document analysis methods for output from agent-based models” D. C. Parker, M. Barton, T. Dawson, T. Filatova, X. Jin, A. Lee, J. Lee, L. Milazzo, J. G. Polhill, K. Robinson, A. Voinov, and A. Ligmann-Zilienska\*. The Association of American Geographers annual conference, Chicago, IL, 21-25 2015.
- “A Prototype Integrated Residential Land-Use and Transportation Model: the WATERloo Region Model (WARM)” D. C. Parker\*, X. Jin, R. Babin, K. Yeung, A. Antanaitis. Joint International Conference on Geospatial Theory, Processing, Modelling and Applications, Toronto, Canada, 7 Oct. 2014.
- “Developing a vector-based land market model X. Jin\*, D. C. Parker, J. Casello, R. Babin, K. Yeung. The Association of American Geographers annual conference. Tampa, FL, April 2014.
- “Comparing residential land management practices between two regions in the North American Great Lakes: can institutional incentives and constraints create path dependent change in social norms’ D. C. Parker. 2014 Global Land Project Open Science Meeting, Berlin, Germany, March 20, 2014.
- “ES policies and stakeholder perception’ D. C. Parker. 2014 Global Land Project Open Science Meeting, Berlin, Germany, March 20, 2014.
- “The use of standard description protocols of agent decisions for project design, planning, and stakeholder Communication’ D. C. Parker. 2014 Global Land Project Open Science Meeting, Berlin, Germany, March 19, 2014.
- “Tracing the impacts of land-market structure on urban growth” D. C. Parker. Presented in session ”From cells to stars: Analyzing complex spatial systems of entity formation” at WICI Data Visualization and Analysis symposium, Waterloo, ON, 21-22 Nov. 2013.
- “Modeling exurban development trajectories and terrestrial carbon sequestration in Southeastern Michigan, USA” D. C. Parker, D. G. Brown, J. I. Nassauer, W. Currie, R. L. Riolo, S. E. Page, S. Sun, M. Hutchins, D. T. Robinson, S. Kiger, Q. Huang, T. Filatova and R. Wyman. Presented at the Land Systems Science Symposium at the American Association of Geographer’s Annual Meeting, 9 April, 2013.
- “An Integrated Model of Market-Driven Dynamics of Carbon in Exurban Landscapes” D. G. Brown\*, S. Sun, W. Currie, J. I. Nassauer, S. E. Page, D. C. Parker, R. L. Riolo, D. T. Robinson. Presented at the American Geophysical Union’s 45th annual Fall Meeting, San Francisco, CA, USA, Dec. 3-7, 2012.
- “Linking land markets, landscape pattern, and ecosystem function in North American residential landscapes” D. C. Parker\*, Q. Huang, and D. Robinson. Presented at the 4<sup>th</sup> International EcoSummit “Ecological Sustainability: Restoring the Planet’s Ecosystem Services,” Columbus, Ohio, USA, Oct. 4, 2012.
- “MR POTATOHEAD meets ODD-D” D. C. Parker. Presented at the International Congress on Environmental Modelling and Software, Workshop H6: “Human decisions in agent-based models (ABM) for natural resource use – need for protocols,” Leipzig, Germany, July 4, 2012.
- “ODD-D Meets Sluce2: Modelling ex-urban residential land markets with heterogeneous developers” D. C. Parker. Presented at the International Congress on Environmental Modelling and Software, Session H2: “Human decisions in agent-based models for natural resource use,” Leipzig, Germany, July 2, 2012.
- “Effects of agent heterogeneity in the presence of a land-market: a systematic test in an agent-based model” Q. Huang\*, D. C. Parker and T. Filatova. Presented at the Annual Meeting of the Canadian

- Association of Geographers, Waterloo, Canada, May, 31, 2012.
- “A web-based model output query and visualization tool for the Agent-Based Land Market Model” D. C. Parker\*, T. Yang, Q. Huang, S. Sun and R. Cabrera. Presented at the AAG Session “Agent-based models and geographical systems: Decision Making”, New York, USA, Feb. 25, 2012.
- “An agent based land use model integrating land market, land management and ecosystem function” Q. Huang\*, S. Sun, D.C. Parker, T. Filatova, D. T. Robinson, D. G. Brown, R. Riolo. Presented at the 8th annual IALE world congress, 18-23rd Aug. 2011, Beijing, China.
- “Do land markets matter? Exploring the effects of land market representations on land-use change projections using agent-based modeling (Abridged and revised version) D.C. Parker\*, S. Sun, Q. Huang, T. Filatova, D. T. Robinson, D. G. Brown, R. Riolo. Presented at the International Conference on Applied Mathematics, Modeling, and Computer Science, Wilfred Laurier University, 25-29 July 2011, Waterloo, ON and at the meeting of Southern Ontario Resource Environmental and Ecological Economics. Wilfred Laurier University, 4 May, 2011.
- “Framing comments: The steady-state economy: Politics or Economics?” D.C. Parker. Presented at the meeting of Southern Ontario Resource Environmental and Ecological Economics. Wilfred Laurier University, 4 May, 2011.
- “Using the MR POTATOHEAD ontology for agent-based land-use change models to compare and generalize case-study applications” D.C. Parker\*. Presented in the organized session, “Market Mechanisms in Land-use Change Models” at the Global Land Project Open Science Meeting, 17-20 Oct. 2010, Tempe, AZ.
- “Part 1: Reflections on teaching in land-change science; Part 2: Open ABM: Education and teaching infrastructure for computational land-change modeling” D.C. Parker\*, N. Rollins, M. Barton, M. Janssen. Presented in the organized session, “Teaching in land-change Science” at the Global Land Project Open Science Meeting, 17-20 Oct. 2010, Tempe, AZ.
- “A second assessment of the role of land-market dynamics in agent-based land exchange models” D.C. Parker\*, S. Sun, D.T. Robinson, Q. Huang, R. Riolo, T. Filatova, and D.G. Brown. Presented in the organized session, “Market Mechanisms in Land-use Change Models” at the Global Land Project Open Science Meeting, 17-20 Oct. 2010, Tempe, AZ.
- “Framework for modeling effects of land use and land management processes on vegetation productivity and carbon storage in exurban Southeastern Michigan” Brown, D\*, D.T. Robinson, D. . Parker, R.L. Riolo, W.S. Currie, M. Hutchins, T. Filatova, S.E. Kiger, J. I. Nassauer, S.E. Page. Presented in the organized session, “Challenges and Opportunities in Modeling Integrated Land-Change Processes I” at the Global Land Project Open Science Meeting, 17-20 Oct. 2010, Tempe, AZ.
- “A first assessment of the role of land-market dynamics in agent-based land exchange models” D.C. Parker\*, S. Sun, D.T. Robinson, R. Riolo, T. Filatova, and D.G. Brown. “Presented at the 2010 AAG annual meetings, organized sessions “Geographic Perspectives on Complexity” Washington, DC, 17 April, 2010.
- “Do land markets matter? Exploring ex-urban residential landscapes using an agent-based model of land-use change and land-manager behavior” D.C. Parker, D.G. Brown, T. Filatova, R. Riolo, D.T. Robinson, and S. Sun. Presented in the session, “Applications of Economic Agent-Based Urban Growth and Land Use Models” at the 2009 North American Regional Science Association International meeting, San Francisco, CA 18-21 Nov. 2009.
- “The role of reciprocity norms, trust, and institutional experience on individual behaviour in commons dilemmas: A study of collective action in source separation of wastes” N.N. Kanbar, D.C. Parker, and

- T. Dietz. Presented in the GLP and UGEC co-sponsored session, "How do culture, beliefs, attitudes and traditions in urban societies interact with environmental change?" D.C. Parker, M. Fragkias and T. Langanke co-organizers, at the IHDP Open Meeting, Bonn, Germany 26-30 April 2009.
- "Cross-scale integration of coupled human-environment models of land-use and land-cover change: Process-based vs. data limitations." D.C. Parker. Presented in the GLP sponsored session, "Integrative models of human and environmental systems in land change science," R. Aspinall, organizer, at the IHDP Open Meeting, Bonn, Germany 26-30 April 2009.
- "An Introduction to Agent-Based Modelling of Coupled Human-Natural Systems" J.G. Polhill\* and D.C. Parker. Presented in the GLP sponsored symposium, "Agent-Based Modelling of Land Use Effects on Ecosystem Processes and Services," J.G. Polhill, organizer, 2009 US-IALE Conference, Snowbird, Utah, USA, 12-16 April.
- "HIV/AIDS, diet and labor: knowledge, beliefs, and practice in southeastern Uganda" M.K. Komwa, K.H. Jacobsen, and D.C. Parker\*. Presented at the IHDP Open Meeting, Bonn, Germany 26-30 April 2009.
- "Effects of foods on affected individuals living with HIV/AIDS in southeastern Uganda" M. Komwa\*, K. Jacobsen, and D.C. Parker. Presented at the American Association of Geographers Annual Meeting, Boston, MA, April 15-19, 2008.
- "An OWL (Web Ontology Language) representation of the MR POTATOHEAD agent-based land-use change meta-model" D.C. Parker, J. G. Polhill, and S. M. Mussavi Rizi\*. Presented at the American Association of Geographers Annual Meeting, Boston, MA, April 15-19, 2008.
- "Agent-based modeling of HIV/AIDS and land-use dynamics in Southeastern Uganda" D.C. Parker\*, M. Komwa, K. Jacobsen, T. Berger, and P. Schreinemachers Presented at the Transatlantic Land Use Conference, Sept. 24-26, 2007 Washington, DC.
- "Exploring impacts of land-use change and residential land-management behavior on water quality in the Potomac Gorge, USA via participatory modeling" D.C. Parker\*, R. A. Brake, R. Albert, S. A. Crate, R. C. Jones, G. Mora-Bourgeois, and C. Nguyen. Presented at the Transatlantic Land Use Conference, Sept. 24-26, 2007 Washington, DC.
- "Exploring the effects of morbidity and mortality from HIV/AIDS on household agricultural productivity in Southeastern Uganda using a multi-agent systems modeling approach " D.C. Parker\*, M. Komwa, T. Berger, and P. Schreinemachers. Presented at the 2007 Joint Annual Meetings of the AAEA, WAEA, and CAEA, July 29-31, Portland, OR.
- "Neighborhood externalities in a residential land market: a spatially explicit agent-based land market model (ALMA)" T. Filatova and D.C. Parker\*. Presented at the 2007 International Conference on Economic Science with Interacting Agents, June 17-19, 2007, Fairfax, VA.
- "Development of a participatory model to explore impacts of land-use change and residential land-management behaviour on water quality in the Potomac Gorge, USA" D.C. Parker\*, R. A. Brake, R. Albert, S. A. Crate, R. C. Jones, G. Mora-Bourgeois, and C. Nguyen. Presented at the Framing Land Use Dynamics II conference, Utrecht, Netherlands, 18-20 April, 2007.
- "Effects of mortality from HIV/AIDS on household agricultural land productivity in southeastern Uganda" M. Komwa\*, D.C. Parker, T. Berger, and P. Schreinemachers. Presented at the American Association of Geographers Annual Meeting, San Francisco, CA April 18-21 2007.
- "Do Land Markets Matter? Preliminary Results from the Endogenous Land Market Model (ELMM)" D.C. Parker\*, J. G. Polhill, and N. Gotts. Presented in session "Geographic Perspectives on Complexity,"

- American Association of Geographers Annual Meeting, Chicago, IL Mar. 7-11, 2006.
- “The effects of HIV/AIDS on cropping decisions and their impact on land use and environment in Uganda: Integrating household survey and GIS data into an agent simulation model” M. Komwa\*, D.C. Parker, T. Benson, and S. Wood. Presented in session “Global AIDS,” American Association of Geographers Annual Meeting, Chicago, IL Mar. 7-11, 2006.
- “Eastern Deciduous Forests as Carbon Sinks: Interactions Between Ecosystems and Land Management” A. Hessel\*, S. Briden, S. Kazar, W. Peterjohn, R. Thomas, and D.C. Parker. American Association of Geographers Annual Meeting, Chicago, IL Mar. 7-11, 2006.
- “Linking socioeconomic drivers of timber harvest to carbon sequestration outcomes in Eastern United States deciduous forests” D.C. Parker\*, A. Hessel, W. Peterjohn, R. Thomas, M. Komwa, and S. Briden. 6th Open Meeting of the IHDP, Bonn, Germany, Oct. 9-13, 2005.
- “Exploring cropping choices and their impact on land use in Uganda: Integrating household survey and GIS data into an agent simulation model” M. Komwa\*, D.C. Parker, T. Benson, and S. Wood. 6th Open Meeting of the IHDP, Bonn, Germany, Oct. 9-13, 2005.
- “Individual rationality, institutional structure, and power-law distributions: Exploring the distribution of rural land-use holdings using FEARLUS” D.C. Parker\* and Nick Gotts. Presented in session “Geographic Perspectives on Complexity, American Association of Geographers Annual Meeting, Denver, CO April 5-9, 2005.
- “Edge-effect externalities, external scale economies, and spatial clustering: Implications for the evolution of organic farming landscapes” D.C. Parker\* and D. Munroe. Presented in the “Drivers of Land-Use Change: Linking Pattern and Process” session in the workshop Integrated Assessment of the Land Use System: The Future of Land Use, Amsterdam, Netherlands Oct. 28-30, 2004.
- “The ALMM Model: Linking Land Market Activity to Urban Sprawl” D.C. Parker. Presented in session “Geographic Perspectives on Complexity, American Association of Geographers Annual Meeting, Philadelphia, PA March 14-19, 2004.
- “Multi-Agent System Modeling of Spatial Dynamics in SocioEconomic and Environmental Systems” T. Berger\* and D.C. Parker. Framing Land Use Dynamics conference, Utrecht University, Netherlands, April 16-18, 2003.
- “Agent-Based Computational Models Applied to Land-Use/Land-Cover Change: Recent Work, Remaining Challenges, and Future Directions” T. Berger\* and D.C. Parker. In Organized Symposium, “New Techniques for Land-Use Modeling,” Elena Irwin and D.C. Parker, co-organizers, 2002 AAEA Annual Meetings, Long Beach, CA, July 28-31.
- “Multi-Agent Modeling of Interlinked Socioeconomic and Biophysical Processes at Multiple Spatial Scales” D.C. Parker\* and T. Berger. Second World Congress of Environmental and Resource Economists, 2002 AAEA Annual Meetings, Monterey, CA, June 24-27, 2002.
- “Empirical Tests Based on Emergent Landscape Properties: Linking Multi-Agent Systems to Data” D.C. Parker\* and V. Meretsky. Presented in session *Geographical Perspectives on Complexity Theory and Complex Systems I*, American Association of Geographers Annual Meeting, Los Angeles, CA, March 19-23, 2002.
- “Validating Spatially-Explicit, Predictive Land-Cover Models – How Does the Question Shape the Method?” V. Meretsky\*, T. P. Evans, and D.C. Parker. Presented in *Spatial Ecology: Models and Methods*, Conference of the Ecological Society of America Annual Meeting, August 5-10, 2001, Madison, WI.
- “Observing Landscape Processes and Outcomes” V. Meretsky\*, T. P. Evans, D.C. Parker, and C. Crois-

sant. Presented in *Pattern, process, scale, and hierarchy: interactions in human-dominated and natural landscapes*, 16th annual symposium of the International Association of Landscape Ecology - U.S. Chapter. April 25-29, 2001, Phoenix, AZ.

“An Agent-based Model of Parcel-level Landcover Change in Southern Indiana” Tom P. Evans\*, Matt Hoffmann, Hugh Kelly, and D.C. Parker. American Association of Geographers Annual Meeting, New York, New York, Feb.27-March 3, 2001.

“Location and Production Patterns of Certified Organic Farmers: Individual Incentives and Spatial Clustering” D.C. Parker. American Association of Geographers Annual Meeting, New York, New York, Feb.27-March 3, 2001.

“Empirical Tests for Landscape Impacts of Edge-Effect Externalities in Organic Agriculture” D.C. Parker. Short paper, Fourth Occasional California Workshop on Environmental and Resource Economics, Oct. 16-18, 1998, Santa Barbara, CA.

### Teaching Activities

Winter 2021, Fall 2022 SMART training program “Methods Café:” course developer and one of 12 instructors

Winter 2020, 2020 University of Waterloo Climate Change Planning

Fall 2012, 2013, 2014 University of Waterloo PhD Research Forum

Fall 2009/2010/2011/2012/2014/2017/2018/2023 University of Waterloo Regional Economic Analysis (Undergraduate/graduate; planning/geography/local economic development)

Winter 2010/2011/2012/2013/2014/2024 University of Waterloo Research Design (Graduate planning)

Winter 2010/2010/2012/2013/2015/2019; Summer 2022 University of Waterloo Modelling the City (Undergraduate/graduate planning and geography, civil engineering technical elective)

Summer 2018) Introduction to Agent-based Modelling (Undergraduate/graduate planning and geography, civil engineering technical elective)

Fall 2007 George Mason University Ecological Economics (Undergraduate geography/environment science and policy)

Fall 2004; Spring 2007,2009 George Mason University Spatial agent-based models of human/environment interactions (Graduate computational social science/geography/environment science and policy class)

Spring 2004,2005; Fall 2008, George Mason University Economics of human-environment interactions (Graduate geography/environment science and policy class)

Fall 2003,2004,2006; Spring 2008, George Mason University Introduction to environmental and resource economics (Graduate geography/environment science and policy class)

Spring 2003,2004,2005; Fall 2006,2007,2008 George Mason University Land-use modeling techniques and applications (Graduate geography/environment science and policy/computational social science class)

1/96-3/2000: Teaching assistant, Department of Ag and Resource Economics, U.C. Davis Finance, Intermediate Microeconomics, Environmental and Resource Economics, and Linear Programming.

### Thesis Committee Service

External reviewer, MS thesis, Jennifer Whalen, MA, Geography Department, Memorial University of Newfoundland (2005)

Ryan Albert, George Mason University, Environmental Science and Policy (PhD, May 2007)  
 Chris Branigan, George Mason University, Environmental Science and Policy (MS, May 2007)  
 Tatiana Filatova, University of Twente (PhD, Cum Laude 2009; A. Van der Veen, adviser)  
 Mike Livermore, George Mason University, Computational Social Science (MS, completed May 2015)  
 Xiogbing Jin, Memorial University, Newfoundland, Geography (External reviewer, PhD completed Sept. 2010)  
 Sean Donahoe, George Mason University, Environmental Science and Policy (PhD, completed 2011)  
 Dou Yue, University of Waterloo, Geography and Environmental Management, (PhD, completed 2016)  
 Hongxiu Li, University of Waterloo, Economics (PhD, completed 2017)  
 Justin Cook, University of Waterloo, Planning, (MA, completed 2018)  
 Ifeanyi Okwuchi, University of Waterloo, Systems Design Engineering. (MS, completed 2020)  
 Norman Kearny, University of Waterloo, SEED (PhD, 2021)  
 Yuanqi Feng, University of Michigan School for Environment and Sustainability (PhD, Ongoing)  
 Adam Skoles, University of Waterloo, School of Planning (PhD, Ongoing)

### **Undergraduate and Graduate Research Supervision**

Sara O’Connell, George Mason University, Environmental Science and Policy (MS, May, 2005. Project title “An Evaluation of the Environmental Effectiveness of ENERGY STAR<sup>®</sup> for Buildings.”)  
 Nancy Nabil Kanbar, George Mason University, Environmental Science and Policy (PhD; co-chair with Dr. Tom Dietz. PhD Dec. 2005. Thesis title “Analyzing Individual Behavior in Commons Dilemmas: A Study of Collective Action in Source Separation of Wastes.”)  
 Maction Komwa, George Mason University, Environmental Science and Policy (PhD, co-chair with Kathryn Jacobsen, completed Aug. 2011). PhD Thesis title “The Impact Of HIV/AIDS On Rural Agricultural Households In Mayuge District In Southeastern Uganda”.  
 Tianyi Yang, University of Waterloo, Dept. of Geography and Env. Management (Geomatics) (Undergraduate honours thesis, completed May 2011.) Project title “Dissemination and Visualization of Simulation Models A Demonstration Project for Overcoming the Barriers of Modeling in the Policy Process”  
 Noha Tarek, University of Waterloo, Local Economic Development (MA project, completed May 2011, title “Ingenious Cities: Evolution, Foundation and Assessment”)  
 Qingxu Huang, University of Waterloo, Dept. of Geography and Env. Management, (PhD, completed June 2013). PhD Thesis title: “Exurban land-cover, land-use, and land-market evolution: Measuring, reviewing and modeling spatial and agent heterogeneity from the bottom up”  
 Emma DeField, University of Waterloo, School of Planning (MA, completed August 2013, co-advisor with Roger Suffling, title: “Property size preferences and the value of private and public outdoor spaces amid a shift to high-density residential development: A case study of Kitchener-Waterloo, Ontario”)  
 Jason Neudorf, University of Waterloo, School of Planning (MA, completed August 2014, co-advisor with Jeff Casello, title: “Understanding Accessibility, Analyzing Policy: New Approaches for a New Paradigm”)  
 Fatemeh Jahanmiri, University of Waterloo, School of Planning (MA. completed April 2015, title: “Making Sense of the Fractal Urban Form and Function: An Agent-Based Modeling Approach”)  
 Robert Babin, University of Waterloo, School of Planning, (MA, completed Nov. 2016, title: “Estimating Homebuyer Preferences Under Intensification: Hedonic Modelling of Open Space and Multimodal Transit Amenities Preceding Light Rail in Kitchener-Waterloo”)  
 Xinyue Pi, University of Waterloo, School of Planning, (MES, completed Oct. 2017, title: “Exploring Rental Housing Markets in Kitchener-Waterloo, Ontario”)  
 Yu Huang, University of Waterloo, School of Planning, (PhD, planning, completed Mar 2020, title: “Analyzing housing market dynamics and residential location choices concurrent with light-rail

transit investment in Kitchener-Waterloo”)

Devin Feng, University of Waterloo, Department of Civil Engineering, (MS, 2021, co-supervision with Chris Bauchman, title “A Rules-based Mode Choice Model using CHAID Decision Trees and Dynamic Transit Accessibility”)

David Ferrone, University of Waterloo School of Planning, (MA, 2021, major research paper title: “An Examination of the Relationship Between Residential and Commercial Development Inside and Outside the Central Transit Corridor from 1999-2021”)

Kaitlin Webber, University of Waterloo, School of Planning, (MA, planning, 2022, title: “Exploring the relationship between transit-induced intensification and retail gentrification in a mid-sized Canadian city”)

Fatemeh Jahanmiri, University of Waterloo, School of Planning, (PhD candidate, planning)

Hazem Ahmed University of Waterloo, School of Planning, (PhD candidate)

Alex Petric, University of Waterloo, School of Planning, (PhD candidate)

Shahab Valaei Sharif, University of Waterloo, School of Planning, (PhD, ongoing)

### Post-doctoral Supervision

Shipeng Sun, University of Waterloo (1/2010-1/2012)

Umberto Gostoli, University of Waterloo (11/2012-10/2013)

Xiongbing Jin, University of Waterloo (1/2013-12/2016)

Yu Huang, University of Waterloo (5/2020-4/2021)

### Educational Outreach Activities

2/2009, Keynote speaker, First Changes Winter school on System Analysis and Integrated Modelling in Climate Change Research Universita' Ca' Foscari di Venezia, Venice, Italy. Presentation, “Introduction to agent-based and cellular automaton models of land-use change.”

11/2007, WISDOM (Women in Science DOMains) presentation “Investigating the effects of HIV/AIDS on agricultural production and household livelihoods in Southeastern Uganda using agent-based modeling,” George Mason University.

2005/2006, ESRI International Users Conference “Spatial Analysis and Modeling” pre-conference workshop (with Mike Goodchild and Dan Brown)

4/2004: “A virtual tour of Fairfax City using GIS (Geographic Information Systems)” Hands-on workshop at the Sally Ride science fair for girls, George Mason University.

5/2003: “Complexity theory as a tool for linking pattern and process in urban landscapes” Presentation at the Thomas Jefferson High School for Science and Technology, Fairfax, VA.

11/2002: “A Theoretical Overview of Agent-Based Models of Land-Use Change” *Invited presentation and lab session at the LUCC IPO advanced study course on modeling land-use change, Oct. 27-Nov. 02, 2002, University of Louvain, Department of Geography, Louvain-La-Neuve, Belgium.*

3/2000: “Expanding Your Horizons” Conducted experimental market auctions with junior high school girls interested in careers in math and science.

### International workshops and conferences organized/hosted

Co-organizer, with V. Schweizer, C. Nehaniv, and M. Daas WICI/Fields Math for Complex Climate Challenges workshop. May 1-4, 2023 University of Waterloo, Canada.

Lead organizer Workshop on Agent-based Real Estate Market Models, Part 1: Waterloo, Canada, June 23, 2018; Part 2: Institute for New Economics Thinking, Oxford University, Oxford, UK, Sept.

14-15, 2018.

Lead organizer and host Waterloo Institute for Complexity and Innovation International Conference on Modelling Complex Urban Environments, Waterloo, Canada, June 21-22, 2018.

Co-organizer with J. G. Polhill Analyzing and Synthesizing Results from Complex Socio-ecosystem Models with High-dimensional Input, Parameter and Output Spaces. The International Environmental Modelling & Software Society Conference, San Diego, CA, June 16, 2014.

Lead organizer and host Waterloo Institute for Complexity and Innovation Data Analysis and Modelling Symposium, Nov. 21-22, 2015 University of Waterloo, Waterloo, Ontario, Canada

Lead organizer and host (with T. Filatova, E. Milne, and R. Aspinall): Workshop on agent-based land market models Sponsored by Project SLUCE II and the Aberdeen Global Land Project nodal office on integration and modelling. May 29-31, 2009, the Macaulay Institute, Aberdeen, Scotland.

Co-organizer (with M. Huigen, D. Robinson, F. Gatzweiler, H. Wittmer, and T. Berger) Multi-Agent Modeling and Collaborative Planning - Method2Method Workshop. Pre-conference workshop: 6th Open Meeting of the IHDP, Bonn, Germany, Oct. 7-8, 2005.

Lead organizer (with M. Goodchild, W. McConnell, and B.L. Turner II): Special workshop on Agent-based Models of Land use Sponsored by the Center for Spatially Integrated Social Sciences, LUCC Focus 1, and CIPEC. Oct 4-7, 2001, Irvine, CA ([www.csiss.org/events/other/agent-based](http://www.csiss.org/events/other/agent-based)).

### Professional Activities and Service

“Fields Institute Math for Climate Challenges” Interim Steering Committee Member, 11/2022-

Advisory panel, “Greater Toronto Area Urbansim Implementation” Canadian Mortgage and Housing Corporation, 11/2020-

Member, founding organizing committee and executive committee, Network for Computational Modeling in Socio-Ecological Sciences (CoMSES) 9/2009-

Scientific Steering Committee, Global Land Project Jan 2008-Mar 2014.

Journal of Land Use Science (through 2016)

Computers, Environment, and Urban Systems (through 2018)

Editorial Boards Change and Adaptation in Socio-Ecological Systems (through 2022)

Socio-Environmental Systems Modeling

Land

Guest editor, Thematic Issue on Spatial Agent-Based Models for Socio-Ecological Systems Environmental Modelling and Software (Volume 45, June 2013).

Guest editor, Special Issue on Agent-based Computational Economics Canadian Journal of Agricultural Economics (Volume 54 Issue 2, Oct. 2009).

Agricultural Economics  
 Agriculture, Ecosystems, and Environment  
 Agriculture and Resource Economics Review  
 Applied Spatial Analysis and Policy  
 Agricultural Systems  
 American Agricultural Economics Association Annual Meetings  
 American Journal of Agricultural Economics  
 Annals of the Association of American Geographers  
 Cambridge Press  
 Cheltenham Press  
 Computers, Environment, and Urban Systems  
 Current Opinion in Environmental Sustainability Ecological Applications  
 Ecological Economics  
 Ecological Modelling  
 Ecology and Society  
 Elsevier. Inc.  
 Environment and Planning B  
 Environmental Modelling and Software  
 Eric Pas Regional Science Dissertation Award  
 European Agricultural and Resource Economics Geoforum  
 Geographical Analysis  
 GeoJournal  
 Interface Focus  
 International Journal of GIS  
 International Journal of Operations and Quantitative Management  
 Journal of Agricultural Economics  
 Journal of Agricultural and Resource Economics  
 Journal of Artificial Societies and Social Simulation  
 Journal of Economic Dynamics and Control  
 Journal of Environmental Economics and Management  
 Journal of Land Use Science  
 Journal of Urban Affairs  
 Journal of Urban Planning and Development  
 Landscape and Urban Planning  
 Landscape Ecology  
 Land-Use Policy  
 Nature Climate Change  
 Nature Sustainability  
 PLOS 1  
 Professional Geographer  
 Proceedings of the National Academy of Sciences  
 Regional Environmental Change  
 Resources for the Future Press  
 Review of Agricultural Economics  
 Sociological Methods and Research  
 United Nations Development Programme  
 Water Resources Reserach  
 World Development

Publication Reviewer:

Belgian Research Action Through Interdisciplinary Networks  
 California Energy Commission PIEREA grant program  
 European Research Commission panel and grant reviewer (2016, 2018, 2019, 2020, 2021, 2022)  
 Maine Sea Grant program  
 US National Science Foundation Review Panel Member  
 US National Science Foundation grant reviewer  
 The Ohio State University  
 Grant Reviewer Social Science and Humanities Research Council, Canada  
 Swiss National Science Foundation  
 Swiss Federal Institute of Technology  
 University of Hawaii Pelagic Fisheries Research program  
 Wageningen University PE&RC  
 US National Institute of Health Review Panel Member  
 Leverhulme Trust  
 NSERC, Canada  
 Ontario Graduate Scholarships

Reviewer, Chesapeake Bay STAC Watershed Land Use/Land Cover Technical Review and Comment June, 2006; May, 2008.

External Reviewer, EPA report "Preliminary Steps Towards Integrating Climate and Land Use: the Development of Land-use Scenarios Consistent with Climate Change Emissions Storylines" Nov 2008.

Program Committee First (2006) World Congresses on Social Simulation; Program Committee, Local organizing committee and poster session coordinator Second WCSS (2008); 2010 International Conference on Integrative Landscape Modelling; 2010 International Congress on Environmental Modelling and Software; 2010 Global Land Project Open Science Meeting, 2014 Global Land Project Open Science Meeting.

Developer, MAS/LUCC resource site Hosted by CSISS at <http://www.csiss.org/resources/maslucc>.

Co-founder, MaSpace (Multi-agent system models of spatial human-environment interactions) electronic mailing list: <https://listserv.indiana.edu/cgi-bin/wa-iub.exe?A0=MASPACE-L>.