Curriculum vitae

Mark Alun Lewis

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Birth Date: December 7, 1962

Nationality: Canadian

Degrees:

University of Oxford
D.Phil. in Mathematics (Mathematical Biology), November 1990. Thesis entitled "Analysis of Dynamic and Stationary Biological Pattern Formation." Supervised by Professor J. D. Murray, FRS.

University of Victoria, Canada
B.Sc., Double Major in Biology and Combined Mathematics/Computer Science, May 1987, First Class.

Positions:

7/01–now *Professor and Senior Canada Research Chair in Mathematical Biology*
Department of Mathematical Sciences and Department of Biological Sciences, University of Alberta.

7/00–now *Professor*
Department of Mathematics, University of Utah.

7/95–7/00 *Associate Professor*
Department of Mathematics, University of Utah.

5/95–now *Adjunct Faculty*
Department of Biology, University of Utah.

7/93–now *Affiliate Faculty*
Department of Applied Mathematics, University of Washington, Seattle.

4/99–7/99 *Senior Visitor*
Institute for Industrial and Applied Mathematics, University of Minnesota.

9/98–12/98 *Research Fellow*
Centre for Population Biology at Silwood Park, Imperial College, University of London.

95 winter *Visiting Fellow*
Department of Ecology and Evolution, Princeton University (Sloan Research Fellow).

8/92-6/95 *Assistant Professor*
Department of Mathematics, University of Utah.

1/91–7/92 *Research Associate*
Mathematical Biology, jointly with the departments of Applied Mathematics and Zoology, University of Washington, working with Professors J.D. Murray and P. Kareiva, and supported by an NSERC of Canada Postdoctoral Fellowship Award.

Awards: **(Faculty)** Alfred P. Sloan Research Fellowship, June 1994–September 1996; National Young Investigator Award (NSF), October 1994–September 1999, University of Utah Faculty Fellowship, April 1998–June 1998, Senior Canada Research Chair in Mathematical Biology, July 2001–present, Killam Annual Professorship (Alberta), 2006–7, American Society for Naturalists Presidential Award, 2006, McCalla Professorship (Alberta), 2007–8.

(Postgraduate) ICIAM Fellowship to give presentation at the International Conference on Industrial and Applied Mathematics, July 8–12, 1991; NSERC Postdoctoral Fellowship, University of Washington; Canadian Centennial Scholarship Fund (UK), Oxford; Overseas Research Studentship Award, Oxford; NSERC Postgraduate Scholarship, Oxford.

Major Grants:

Natural Science and Engineering Research Council of Canada, Spatial Dynamics in Ecology 2006–2011 Award amount: $ 51,800 per annum.

Natural Science and Engineering Research Council of Canada, Canadian Aquatic Invasive Species Network 2006–2011 (Hugh MacIsaac PI) Award amount: $ 3,781,944.

Natural Resources Canada Mountain Pine Beetle Initiative, Modeling Spatiotemporal patterns of MPB infestation 2004–2007 (CoPI Fangliang He). Award amount: $ 394,090.

MITACS - Networks of Centres of Excellence, Network for Biological Invasions and Dispersal Research 2003–2005 (J. Watmough PI). Award amount: $ 240,000

Natural Sciences and Engineering Research Council of Canada, Collaborative Research Opportunities Grant: Ecological Forecasting and Risk Analysis of Nonindigenous Species. April 2003–April 2007 (CoPI Hugh MacIsaac). Award amount: $ 685,292

National Science Foundation, University of Notre Dame subcontract, Ecological Forecasting and Risk Analysis of Nonindenous Species. September 2002–September 2007. Award amount: $15,000 per annum

Natural Sciences and Engineering Research Council of Canada, Models for dispersal in spatial ecology. April 2002–April 2006. Award amount: $45,000 per annum

Endowment Fund for the Future, University of Alberta, Distinguished visitor fund. February 2002–April 2002 (CoPI Thomas Hillen). Total Award amount: $8,836

Canada Research Chair in Mathematical Biology, Chair's Fund for Research. University of Alberta, July 2001–July 2008. Award amount: $69,000 per annum

Innovation and Science Research Investments Program, Research Program in Mathematical Biology and Centre for Mathematical Biology at the University of Alberta, July 2001. Total Award amount: $95,000.

Canadian Foundation for Innovation, Research Program in Mathematical Biology and Centre for Mathematical Biology at the University of Alberta, July 2001. Total Award amount: $95,000.

National Science Foundation, Mathematical Sciences: International Conference on Mathematics in Biology at the University of Utah, August 2000. Total Award amount: US$13,000.00.

National Science Foundation, Mathematical Sciences: Discrete-time models for biological invasions, August 1999 — July 2002. Award is joint with M. Neubert, M. Kot and B. Fagan. Total Award amount: $380,000.00. Utah portion: US$127,500.

National Science Foundation, Mathematical Sciences: Gordon Research Conference

on Theoretical Biology and Biomathematics, June 1998. Award is joint with J. Milton. Award amount: US$19,296.

Funding Incentive Seed Grant Program, University of Utah, Fluid flow model for optimizing high-frequency ventilation of the lung, April 1997 – September 1998. CoPIs D. Eyre, A. Fogelson, and S. Kern. Award amount: US$35,000.

National Science Foundation, Mathematical Sciences: Special Year in Mathematical Biology 1995-1996. Award is joint with H. Othmer and F. Adler. Award amount: US$309,124.

Alfred P. Sloan Research Fellowship, Mathematics: June 1994–September 1996. Award amount: US$30,000.

National Science Foundation National Young Investigator Award: October 1994 – July 2000. Award amount: US$187,802.

National Science Foundation, Mathematical Sciences: Modelling Territorial Patterns and Stability of Wolf-Deer Interactions, September 1992 – August 1995. Award amount: US$124,380.

Environmental Protection Agency: Developing Guidelines for the Assessment of "Spread Risk" Using Microbe Field Trial Data: A Model Based Approach, September 1992 – August 1994. Award is joint with P. Kareiva (project manager) and J.D. Murray. Award amount: US$163,858.

Selected Presentations (since 1995):

1995 Dept. Mathematics and Statistics, University of Victoria; Dept. Applied Mathematics, University of Washington, Seattle; Dept. Mathematics, University of British Columbia, Vancouver; Woods Hole Oceanographic Institute, Woods Hole; SWRIMS Conference on Mathematical Modeling in Population Biology, Logan, Utah.

1996 Spatial Ecology Working Group, NCEAS, Santa Barbara; International Conference on Dynamical Systems and Differential Equations, Missouri; Kyoto Conference on Mathematical Biology, Kyoto, Japan; NCEAS workshop on the role of dispersal in the Holocene expansion of trees, Santa Barbara; Society for Mathematical Biology Annual Meeting, Seattle; 3rd European Conference on Mathematics Applied to Biology and Medicine, Heidelberg, Germany.

1997 International Conference on Differential Equations with Applications to Biology, Halifax; Society for Mathematical Biology Annual Meeting, Raleigh; Species Range Working Group, NCEAS, Santa Barbara.

1998 Dept. Math, University of Minnesota; Dept. Applied Math, University of Washington; Institute for Theoretical Dynamics, University of Davis; Dept. Math, Duke University; Biostatistics, North Carolina State University; AMS Western Division Meeting, Davis; Dept. Biology, Arizona State University; Science at Breakfast Lecture, U Utah; Dept. Math, Bath University; Dept. Biology, Imperial College, University of London; Dept. Math, Heriot Watt University; Dept. Math, Dundee University; Kings College, Cambridge University; Dept. Math, University of Heidelberg; Institute for Theoretical Biology, Leiden University; Dept. Math Utrecht University; AMS Western Division Meeting, Tucson.

1999 Institute for Mathematics and its Applications Minneapolis; Theory and Mathematics in Biology and Medicine, Amsterdam; Ecological Society of America, Spokane; Oberwolfach, Germany.

2000 Dept. Math, University of Alberta; Dept. Biology, University of Alberta; Dept. Math, University of British Columbia; Dept. Biology, University of Santa Barbara, California; UC

San Diego Supercomputer Institute; Alberta Entomological Society; Max Planck Institute, Leipzig.

2001 NCEAS workshop on a New Synthesis of Demography and Dispersal (group participant), Santa Barbara, California; Dept. Math, UC Irvine; Dept. Math, University of Utah; Canadian Applied Mathematics Society, Univerity of Victoria, Canada; Society for Mathematical Biology Meeting, Hawaii; 2001 Canada-China Mathematics Congress, Vancouver, Canada; Newton Institute, Cambridge.

2002 Department of Biological Sciences, University of Miami; Department of Mathematical Sciences, University of Miami; SIAM Life-Sciences Conference, Boston; Bio-X EFF Distinguished Lecture Series, Edmonton, Alberta; Gordon Research Conference on Theoretical Biology and Biomathematics, Tilton, New Hampshire; 5th Americas Conference of Differential Equations and Dynamical Systems, Edmonton, Alberta; International Conference on Modeling Pattern in Biology, Chubu, Japan; Woods Hole Annual Retreat in Mathematical Biology, Nantucket

2003 22nd Annual Ostrum lecturer, Washington State University; topical lecture SIAM/CAIMS annual meeting, Montreal; minisymposium speaker at Canadian Mathematical Society Annual General Meeting, Edmonton; minisymposium speaker at Society for Mathematical Biology meeting, Dundee, invited speaker Banff International Research Station, invited speaker Fields Mathematics Institute workshop on Pattern Formation in Physics, Toronto.

2004 Plenary speaker, Mathematics in Technology and Complex Systems 5th Annual Conference, Halifax; Plenary speaker, joint annual meeting of the Canadian Applied Math Society and Canadian Mathematical Society, Halifax; Plenary speaker, American Institute for Mathematical Sciences meeting, Pomona; Plenary speaker, Annual Meeting of Japan Society for Mathematical Biology; invited speaker, DIVERSITAS workshop on Integrated modelling of economies and ecosystems, Paris; invited speaker Banff International Research Station

2005 University of British Columbia, Department of Zoology, Harvard University, Department of Organismal and Evolutionary Biology, Principal speaker, Sixth Mississippi State–UAB Conference on Differential Equations and Computational Simulations, Graduate summer school lecturer, Park City Math Institute (Institute for Advanced Study), Canadian Mathematical Society Winter Meeting, Victoria.

2006 Lansdowne Lecturer, University of Victoria, invited speaker, American Association for the Advancement of Science, invited speaker Western Conference on Linear Algebra, keynote speaker, University of Toledo, invited speaker, Mexican Biomathematics Autumn School (Xalapa) plenary speaker, PIMS Distinguished Lecturer, University of British Columbia

Organized: Co-organizer of Pacific Northwest Workshop in Mathematical Biology (1992); Special Year in Mathematical Biology (1995/96) at University of Utah; Co-chair of Gordon Conference on Theoretical Biology and Biomathematics (1998); Co-organizer of a workshop: 'From Individuals to Aggregations' at the IMA during Spring 1999; Organizer of the International Conference on Mathematics in Biology and Society for Mathematical Biology Annual Meeting (2000) at the University of Utah; Scientific Organizing Committee member, SIAM Life Sciences Conference, Boston (2001); Minisymposium organizer, SIAM Life Sciences Conference, Boston (2001); Scientific Organizing Committee member, International Conference on Mathematics in Biology and Society for Mathematical Biology Annual Meeting (2001) in Hawaii; Coorganizer and instructor for First and Second Annual PIMS Mathematical Biology Summer Workshop (2002); Scientific Organizing Committee member, Fourth Geoffrey J. Butler International Conference in Differential Equations and Mathematical Biology (Alberta) (2003); Scientific Organizing Committee member, International Conference on Mathematics in Biology and Society for Mathematical Biology Annual Meeting (2002) in Knoxville; Session organizer on Global Change at the Gordon Conference on

Theoretical Biology and Biomathematics (2002); Scientific Committee for Applications of Mathematics in Medicine workshop at the Fields Institute (2003); Coorganizer of BIRS workshop: From molecules to ecosystems; The legacy of Lee Segel (2003); Coorganizer of a BIRS Focused Research Group on Mathematical Models for Plant Dispersal (2003); Scientific Organizing Committee member and Minisymposium organizer, International Conference on Mathematics in Biology and Society for Mathematical Biology Annual Meeting (2003) in Dundee, Scotland; Pacific Institute for the Mathematical Sciences, Period of Concentration in Mathematical Ecology and Evolution (2003–5); Scientific committee for Differential Equations and Applications in Mathematical Biology, Malaspina University College, Nanaimo (2004); Coorganizer of MITACS/PIMS Summer School and Workshop: Infectious Diseases, Banff (2004); Coorganizer of BIRS workshop: Mathematical Models for Biological Invasions, Banff (2005); European Society for Mathematical and Theoretical Biology Meeting Scientific Committee member (2005), IPAM Cells and Materials program (2005), Park City Math Institute Summer Program in Mathematical Biology (Institute for Advanced Study) (2005), Scientific Organizing Committee member for Mathematics Institutes and NRC Workshop in Computational Biology (2005), NSF Review Panel member for Mathematical Biosciences Institute.

Editorial: *SIAM Journal on Applied Math* (Editor from March 2005); *Applied Math Research eXpress* (Editor from December 2004); *Journal of Biological Dynamics* (Editorial Board Member from September 2006); *IMA Journal of Mathematics Applied to Biology and Medicine* (Associate Editor from January 1996); *Journal of Theoretical Biology* (Editorial Board Member from March 1997 to May 2001); *Journal of Mathematical Biology* (Editorial Board Member from January 2000); *Bulletin of Mathematical Biology* (Editorial Board Member from August 2006); *Ecology and Ecological Monographs* (Member of Board of Editors from August 2001 to August 2004); *Theoretical Ecology* (Editorial Board); *Theoretical Ecology Series, Academic Press* (Editorial Board Member from May 2002).

Advisory: Pacific Institute for Mathematical Sciences (Board of Directors from January 2004-June 2005, July 2006-present). NSERC Grant Selection Committee in Ecology and Evolution (member for 2004-5, 2006-8); National Science Foundation (NSF) review committee for Mathematical Biosciences Institute (2004); *Journal of Theoretical Biology* (Advisory Board from May 2001–May 2003); Banff International Research Station for Mathematical Innovation and Discovery (Scientific Advisory Board from March 2001, and Steering Committee from March 2001-June 2002); Panel member for the NSF/NIH joint NIGMS grant committee in mathematical biology (February 2002); Alberta Ingenuity Fund Associateship Panel (April 2002)

Service: President, Society for Mathematical Biology (2001-3); President Elect, Society for Mathematical Biology (2000); Board of Directors, Society for Mathematical Biology (1996-1999); External examiner, Department of Mathematics, Arizona State University (2001); Okubo Prize Committee Member (2001); Bellman Prize Committee Member (2002); Canada Research Chairs College of Reviewers (2002).

Supervised: Greg Schmitz (MSc. by research, 1993), Steve Parrish (MSc. by research, 1998), Lora Ballinger (MSc. by research 1999), Brenlyn Thiroit (MStat, 2000), Robert van Kirk (PhD. by research 1995, Associate Professor of Mathematics Idaho State University), Tom Robbins (PhD. by research, 2004, postdoctoral researcher University of Utah), Amy Hurford (MSc. by research, 2005), Marty Krkosek (PhD. by research, current), Chris Jerde (PhD. by research, current), Jungmin Lee (PhD. by research 2006, postdoctoral research, University of Alberta), Raluca Eftimie (PhD. by research, current) Tomas de Camino-Beck (PhD. by research 2006, postdoctoral research, University of Alberta), Peter Molnar (PhD. by research, current), Hannah McKenzie (Msc. by research 2006, PhD by research, University of Alberta), Andrea Dawson (PhD. by research, current), Markus Owen (postdoc 1997-99, Reader, Nottingham), Bingtuan Li (postdoc 1999-2001, Associate Professor Louiville), Christina Cobbold (postdoc 2001-2003, Lecturer, Glasgow), AnneMarie Pielaat (postdoc 2001-2003, RIVM, The Netherlands), Leeza Pachepsky (visiting postdoc 2002-2004, postdoc UCSB), Joanna Renclawowicz (postdoc 2003-2004, Polish Academy of Sciences), Mar-

jorie Wonham (postdoc 2002-current), Frithjof Lutscher (postdoc 2001-5, Assistant Professor University of Ottawa), Erik Noonburg (postdoc 2003-5, Assistant Professor Florida Atlantic University), Tom Robbins (postdoc 2004-5, postdoc University of Utah), Caroline Bampfylde (postdoc 2004-current), Bill Nelson (postdoc 2005-current), Alex Potapov (research associate 2002-current), Frank Hilker (postdoc 2006-current), Jungmin Lee (postdoc 2006-current), Tomas de Camino Beck (postdoc 2006-current).

All students and postdocs listed were supervised directly. Current locations of completed doctoral and postdoctoral supervisees are given.

Societies: Ecological Society of America (ESA), Society for Industrial and Applied Mathematics (SIAM), Canadian Applied and Industrial Mathematics Society (CAIMS), Society for Mathematical Biology (SMB)

Journal Publications:

1. Hethcote, H.W., Lewis, M.A., van den Driessche, P.: An epidemiological model with a delay and nonlinear incidence rate, *J. Math. Biol.* **27**:49–64 (1989).
2. Grindrod, P., Lewis, M.A., Murray, J.D.: A geometrical approach to wave-type solutions of excitable reaction-diffusion systems, *Proc. R. Soc. Lond.*, **A433**:151–164 (1991).
3. Lewis, M.A., Grindrod, P.: One-way blocks in cardiac tissue: A mechanism for propagation failure in Purkinje fibres, *Bull. Math. Biol.*, **53**:881–899 (1991).
4. Lewis, M.A., Murray, J.D.: Analysis of stable two-dimensional patterns in contractile cytogel, *J. Nonlin. Sci.* **3**:289–311 (1991).
5. Lewis, M.A., Murray, J.D.: Analysis of dynamic and stationary pattern formation in the cell cortex, *J. Math. Biol.* **31**:25–71 (1992).
6. Lewis, M.A., Kareiva, P.: Allee dynamics and the spread of invading organisms, *Theor. Pop. Biol.* **43**:141–158 (1993).
7. Lewis, M.A., van den Driessche, P.: Waves of extinction from sterile insect release, *Math. Biosci.* **116**:221–247 (1993).
8. Lewis, M.A Murray, J.D.: Modelling territoriality and wolf-deer interactions, *Nature* **366**:738–740 (1993).
9. Sneyd, J., Atri, A., Ferguson, M.W.J., Lewis, M.A., Seward, W., Murray, J.D.: A model for the spatial patterning of teeth primordia in the Alligator: Initiation of the dental determinant, *J. Theor. Biol.* **165**:633–658 (1993).
10. Holmes, E.E., Lewis, M.A., Banks, J.E. and Veit, R.R.: Partial differential equations in ecology: spatial interactions and population dynamics, *Ecology* **75**:17–29 (1994).
11. Lewis, M.A: Spatial coupling of plant and herbivore dynamics: The contribution of herbivore dispersal to transient and persistent "waves" of damage, *Theor. Pop. Biol.* **45**:277–312 (1994).
12. Sherratt, J.A., Lewis, M.A., Fowler, A.C.: Ecological chaos in the wake of invasion, *Proc. Nat. Acad. Sci.* **92**:2524–2528 (1995).
13. Neubert, M., Kot, M., Lewis, M.A.: Dispersal and pattern formation in a discrete-time predator-prey model, *Theor. Pop. Biol.* **48**:7–43 (1995).
14. White, K.J., Lewis, M.A., Murray, J.D.: A model for wolf-pack territory formation and maintenance *J. Theor. Biol.* **178**: 29–43 (1996).
15. Cruywagen G., Kareiva, P., Lewis, M.A., Murray, J.D.: Competition in a spatially heterogeneous environment: modelling the risk of spread of genetically engineered population, *Theor. Pop. Biol.* **49**: 1–38 (1996).
16. Lewis, M.A., Schmitz, G., Kareiva, P., Trevors, J.: Models to examine containment and spread of genetically engineered microbes *Mol. Ecol.* **5**: 165–175 (1996).
17. Veit, R.R., Lewis, M.A.: Dispersal, population growth and the Allee Effect: Dynamics of the House Finch invasion of eastern North America *Am. Nat.* **148**: 255–274 (1996).
18. Kot, M., Lewis, M.A., van den Driessche, P.: Dispersal data and the spread of invading organisms *Ecology* **77**, 2027-2042 (1996).

19. Lewis, M.A., Schmitz, G.: Biological invasion of an organism with separate mobile and stationary states: Modeling and analysis *Forma* **11**: 1–25 (1996).

20. White, K.J., Lewis, M.A., Murray, J.D.: Wolf-deer interactions: a mathematical model. *Proc. Roy. Soc. B* **263**: 299–305 (1996).

21. Van Kirk, R.W., Lewis, M.A.: Integrodifference models for persistence in fragmented habitats *Bull. Math. Biol.* **59**: 107–138 (1997).

22. Lewis, M.A., White, K.A.J., Murray, J.D.: Analysis of a model for wolf territories *J. Math. Biol.* **35:** 749–774 (1997).

23. Sherratt, J.A, Eagan, B.T., Lewis, M.A.: Oscillations and chaos behind predator-prey invasion: Mathematical artifact or ecological reality? *Phil. Trans. Roy. Soc. B* **352**: 21–38 (1997).

24. Ermentrout, B., Lewis, M.A.: Pattern formation in systems with one spatially distributed species *Bull. Math. Biol.* **59**: 533–550 (1997).

25. Clark, J. Fastie, C. Hurtt, G., Jackson, S., Johnson, C., King, G., Lewis, M., Lynch, J., Pacala, S., Prentice, C., Schupp, G, Webb, T., Wyckoff, P: Reid's Paradox of rapid plant migration: dispersal theory and interpretation of paleoecological records. *BioScience* **48**:13–24 (1998).

26. Moorcroft, P.R., Lewis, M.A., Crabtree R.: Home range analysis using a mechanistic home range model. *Ecology* **80**: 1656–1665 (1999).

27. Van Kirk, R.W., Lewis, M.A.: Edge Permeability and population persistence in isolated habitat patches *Natural Resources Modeling* **12**:37–64 (1999).

28. Neubert, M.G., Kot, M., Lewis, M.A: Invasion speeds in fluctuating environments. *Proc. Roy. Soc. Lond. B* **267** 1603–1610 (2000).

29. Lewis, M.A., Pacala, S.: Modeling and analysis of stochastic invasion processes *J. Math. Biol.* **41**:387–429 (2000).

30. Lewis, M.A.: Spread rate for a nonlinear stochastic invasion. *J. Math. Biol.* **41**:430–454 (2000).

31. Clark, J.S., Horvath, L., Lewis, M.A.: On the estimation of spread rate for a biological population. *Statistics and Probability Letters* **51**:225-234 (2001).

32. Keitt, T.H., Lewis, M.A., Holt, R.D.: Allee effects, invasion pinning, and species' borders *Am. Nat.* **157**:203–216 (2001).

33. Owen, M, Lewis, M.A.: The mechanics of lung tissue under high frequency ventillation *SIAM Journal on Applied Mathematics* **61**:1731–1761 (2001).

34. Clark, J.S., Lewis, M.A., Horvath, L: Invasion by extremes: Population spread with variation in dispersal and reproduction. *Am. Nat.* **157**:537–554 (2001).

35. Owen, M, Lewis, M.A.: How predation can slow, stop or reverse a prey invasion. *Bull. Math. Biol.* **63**:655–684 (2001).

36. Lewis, M.A., Moorcroft, P.R.: ESS analysis of mechanistic home range models: the value of scentmarks in spatial resource partitioning. *Journal of Theoretical Biology* **210**:449–461 (2001).

37. Weinberger, H.F, Lewis, M.A., Li, B.: Analysis of linear determinacy for spread in cooperative models *J Math. Biol.* **45**:183–218 (2002).

38. Lewis, M.A., Li, B., Weinberger, H.F.: Spreading speed and linear determinancy for two-species competition models. *J Math. Biol.* **45**:219–233 (2002).

39. Briscoe, B., Lewis, M.A, Parrish, S.: Home range formation in wolves due to scent marking. *Bulletin of Mathematical Biology* **64**:261–284 (2002).

40. Fagan, W., Lewis, M.A., Neubert, M.G., van den Driessche P.: Invasion theory and biological control *Ecology Letters* **5**:148–157 (2002).

41. MacIsaac, H.J., Robbins, T.C., Lewis, M.A.: Modeling ships' ballast water as invasion threats to the Great Lakes. *Canadian Journal of Fisheries and Aquatic Science* **59**: 1245–1256 (2002).

42. Clark, J., Lewis, M.A., McLachlan, J., HilleRisLambers, J: Estimating population spread based on dispersal data: what can we forecast and how well? *Ecology* **84**: 1979-1988 (2003).

43. Leung, B., Lodge, D.M., Finnoff, D, Shogren, J.F., Lewis, M.A., Lamberti, G: An ounce of prevention or a pound of cure: Bioeconomic risk analysis of invasive species *Proc. Roy. Soc. Lond. B* **269**: 2407–2413 (2003).

44. Lutscher, F., Lewis, M.A.: Spatially-explicit matrix models: A mathematical analysis of stage-structured integrodifference equations *J. Math. Biol.* **48**: 293–324 (2004).

45. Hadeler, K.P., Lewis, M.A.: Spatial dynamics of the diffusive logistic equation with sedentary component *Canadian Applied Math. Quarterly* **10**: 473–500 (2002).

46. Wonham, M.J., de Camino-Beck, T., Lewis, M.A.: An epidemiological model for West Nile Virus: invasion analysis and control applications *Proc. Roy. Soc. Lond B* **271**:501–507 (2004).

47. Potapov, A., Lewis, M.A.: Climate and competition: the effect of moving range boundaries on habitat invasibility *Bull. Math. Biol* **66**:975–1008 (2004).

48. Holt, R.D., Keitt, T.H., Lewis, M.A., Maurer, B.A., Taper, M.L.: Theoretical models of species' borders: single species approaches *Oikos* **108**:18–27 (2005).

49. Cobbold, C.A., Lewis, M.A., Roland, J., Lutscher, F.: How parasitism affects critical patch size in a host-parasitoid system: application to Forest Tent Caterpillar *Theor. Pop. Biol.* **67**:109–125 (2005).

50. Pachepsky, L., Lutscher, F., Nisbet, R., Lewis, M.A.: Persistence, spread, and the drift paradox *Theor. Pop. Biol.* **67**:61–73 (2005).

51. Lutscher, F., Pachepsky, E., Lewis, M.A.: The effect of dispersal patterns on stream populations *SIAM J. Appl. Math.* **65**:1305–1327 (2005).

52. Krkosek, M., Lewis, M.A., Volpe, J.P.: Fish farms, sea lice, and infestations of wild salmonids *Proc. Roy. Soc. Lond. B* **272**: 689-696 (2005).

53. Li, B., Weinberger, H.F., Lewis, M.A.: Existence of traveling waves for discrete and continuous time cooperative systems *Math. Biosci.* **196**:82–98 (2005).

54. Pielaat, A., Lewis, M.A., Lele, S., de Camino-Beck, T.: Optimal sampling design: Catching the tail of the dispersal kernels. *Ecological Modeling* **190**:205–222 (2005).

55. Hilker, F.M., Lewis, M.A., Seno, H., Langlais, M., Malchow, H.: Pathogens can slow down or reverse invasion fronts of their hosts *Biological Invasions* **7**: 817–832 (2005).

56. Fagan, W., Lewis, M.A., Neubert, M, Aumann, C., Apple, J., Bishop, J.: When can herbivory reverse the spread of an invading plant?: A test case from Mount Saint Helens *Am. Nat.* **166**:669–685 (2005).

57. Drake, J., Lewis, M.A., Lodge, D.: Is dilution a solution to exotic species invasions? *American Midland Naturalist* **154**:459–470 (2005).

58. Wonham, M.J., Bailey, S.A., MacIsaac, H.J., Lewis, M.A.: Modeling the invasion risk of diapausing organisms transported in ballast sediments *Can. J. Fish. Aquat. Sci.* **62**:2386–2398 (2005).

59. Lutscher, F., Pachepsky, E., Lewis, M.A.: The effect of dispersal patterns on stream populations *SIAM Rev.* **47**:749–772 (2005).

60. Wonham, M.J., Lewis, M.A., MacIsaac, H.J.: Minimizing invasion risk by reducing propagule pressure: Application to ballast-water exchange *Frontiers in the Ecology and the Environment* **3**:473–478 (2005).

61. Lewis, M.A., Renclawowicz, J., van den Driessche, P.: Traveling waves and spread rates for a West Nile virus model *Bull. Math. Biol.* **68**:3–23 (2006).

62. Lewis, M.A., Renclawowicz, J., van den Driessche, P., Wonham. M: A comparison of continuous and discrete time West Nile virus models *Bull. Math. Biol.* **68**: 491–509 (2006).

63. Topaz, C., Bertozzi, A., Lewis, M.A.: A nonlocal continuum model for biological aggregation *Bull. Math. Biol.* DOI: 10.1007/s11538-006-9088-6 (2006).

64. Wonham, M.J., Lewis, M.A., Renclawowicz, J., van den Driessche, P.: Dynamical mathematical models of West Nile-like diseases: Model structure and disease control implications *Ecology Letters* **9** (2006).

65. Moorcroft, P., Pacala, S., Lewis, M.A.: Potential role of natural enemies on tree species range expansions following climate change *J. Theor. Biol.* **241**:601–616 (2006).

66. Moorcroft, P.R., Lewis, M.A., Crabtree, R.: Mechanistic Home Range Models Predict Patterns of Coyote Territories in Yellowstone *Proc. Roy. Soc. Lond. B* **273** 1651–1659 (2006).

67. Lutscher, F., Lewis, M.A., McCauley, E.: Effects of heterogeneity on spread and persistence in rivers *Bull. Math. Biol.* **68**: 2129–2160 (2006).

68. Hurford, A., Hebblewhite, M., Lewis, M.A.: A spatially-explicit model for the Allee effect: Why wolves recolonize so slowly in Greater Yellowstone *Theor. Pop. Biol.* DOI:10.1016/j.tpb.2006.06.009 (2006).

69. Krkosek, M., Lewis, M.A., Volpe, J., Morton, A.: Fish Farms and sea lice infestations of wild juvenile salmon in the Broughton Archipelago - A rebuttal to Brooks (2006). *Reviews in Fisheries Science* **14**: 1–11 (2006).

70. Bampfylde, C., Lewis, M.A.: Biological control through intraguild predation: A case study in the dynamics of rusty crayfish and smallmouth bass (accepted to *Bull. Math. Biol.*).

71. Potapov, A., Lewis, M.A., Finoff, D.: Prevention of a lake system invasion: Macroscopic description (accepted to *Natural Resource Management*).

72. Krkosek, M., Lewis, M.A., Morton, A., Frazer, L.N., Volpe, J.P: Wild salmon mortality induced by parasites from farm salmon *PNAS* DOI:10.1073/pnas.0603525103 (2006).

73. Noonburg, E.G., Newman L.A., Lewis, M.A., Crabtree, R.L., Potapov, A.B.: Sequential Decision-Making in a Variable Environment: Modeling Elk Movement in Yellowstone National Park as a Dynamic Game (accepted to *Theor. Pop. Biol.*).

74. R. Eftimie, G. de Vries, M.A. Lewis, F. Lutscher: Modeling group formation and activity patters in self-organizing collectives of individuals (accepted to *Bull. Math. Biol.*).

75. Nisbet, R., Anderson, K. , McCauley, E., Lewis, M.A.: Response of equilibrium states to spatial environmental heterogeneity in advective systems (accepted to *Mathematical Biosciences and Engineering*).

76. Lutscher, F., McCauley, E., Lewis, M.A.: Spatial patterns and coexistence mechanisms in systems with unidirectional flow (in press at *Theor. Pop. Biol.*).

77. Weinberger, H.F., Lewis, M.A., Li, B.: Anomalous spreading speeds of cooperative recursion systems (in press at *J. Math. Biol.*).

78. Jerde, C., Lewis, M.A.: Risk assessment for non-indigenous species dispersal (in press at *American Naturalist*).

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