

# John M. Drake

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APPOINTMENTS Associate Professor, University of Georgia (2010 – present)

- Odum School of Ecology (2006 – present)
- Biomedical and Health Sciences Institute (2008 – present)
- Faculty of Infectious Diseases (2008 – present)

Keeley Visiting Fellow, Wadham College, Oxford University (Michaelmas term, 2012)  
Leverhulme Visiting Professor, Oxford University (2012)  
Assistant Professor, University of Georgia (2006-2010)  
Postdoctoral Fellow (2004-2006), National Center for Ecological Analysis and Synthesis (Santa Barbara, California)  
Adjunct Professor (2003), Bethel College (Mishawaka, Indiana)

EDUCATION University of Notre Dame, Indiana USA  
*Ph.D., Biological Sciences, May 2004 (Advisor: Dr. David M. Lodge)*

University of Notre Dame, Indiana USA  
*M.A., History and Philosophy of Science, May 2007*

Covenant College, Lookout Mountain, Georgia USA  
*B.A., Biology, May 1999*

RESEARCH INTERESTS Population Dynamics, Ecology & Evolution of Infectious Diseases, Epidemiology, Niche Theory, Extinction, Allee Effects

EDITORIAL BOARDS *Ecosphere* (Associate Editor: 2010 – present)  
*Ecology Letters* (Associate Editor: 2012 – present)  
*Proceedings of the Royal Society, Series B* (Associate Editor: 2013 – present)  
*Ecology & Evolution* (Associate Editor: 2013 – present)

RESEARCH ARTICLES Barnum, T.R., **J.M. Drake**, C. Colón-Gaud, A.T. Rugenski, T.C. Frauendorf, S. Connelly, S.S. Kilham, M.R. Whiles, K.R. Lips & C.M. Pringle. Food web structure persists after amphibian extirpation in a Neotropical stream. *Ecology* (In press).  
Clements, C.F., **J.M. Drake**, J. Griffiths, & A. Ozgul. Factors affecting the detectability of early warning signals in wild populations. *American Naturalist* (In press).  
Huang, S., **J.M. Drake**, J.L. Gittleman, & S. Altizer. Parasite diversity declines with host evolutionary distinctiveness: A global analysis of carnivores. *Evolution* (In press).  
**Drake, J.M.**, R.B. Kaul, L.W. Alexander, S.M. O'Regan, A.M. Kramer, J.T. Pulliam, M.J. Ferrari, & A.W. Park. Ebola cases and health system demand in Liberia. *PLOS Biology* 13:e1002056. <http://dx.doi.org/10.1371/journal.pbio.1002056>  
Drury, K.L.S., \*J.D. Suter, \*J.B. Rendall, A.M. Kramer, & **J.M. Drake**. Immigration can destabilize tri-trophic interactions: Implications for conservation of top predators. *Theoretical Ecology* (In press).

\*Indicates  
undergraduate  
or high school  
author

- Alexander, K.A., C.E. Sanderson, M. Marathe, B.L. Lewis, C.M. Rivers, J. Shaman, **J.M. Drake**, E. Lofgren, V.M. Dato, M.C. Eisenberg, & S. Eubank. 2015. What factors might have led to the emergence of Ebola in West Africa? *PLOS Neglected Tropical Diseases*. (In press) <http://blogs.plos.org/speakingofmedicine/2014/11/11/factors-might-led-emergence-ebola-west-africa/>
- O'Regan, S.M., K. Magori, J.T. Pulliam, M.A. Zokan, R.B. Kaul, H.D. Barton, & **J.M. Drake**. Multi-scale model of epidemic fadeout: Will local extirpation events inhibit the spread of White-nose Syndrome? *Ecological Applications* (In press).
- Lofgren, E., M.E. Halloran, C.M. Rivers, **J.M. Drake**, T.C. Porco, B. Lewis, W. Yang, A. Vespignani, J. Shaman, J.N.S. Eisenberg, M.C. Eisenberg, M. Marathe, S.V. Scarpino, K.A. Alexander, R. Meza, M.J. Ferrari, J.M. Hyman, L.A. Meyers, S. Eubank. 2014. Mathematical models: A key tool for outbreak response. *Proceedings of the National Academy of Sciences USA* 111:18095-18096. <http://dx.doi.org/10.1073/pnas.1421551111>
- Xu, J., T.L. Wickramaratne, N.V. Chawla, E.K. Grey, K. Steinhaeuser, R.P. Keller, **J.M. Drake**, & D.M. Lodge. 2014. Improving management of aquatic invasions by integrating shipping network, ecological, and environmental data: data mining for social good. *Proceedings of the 20<sup>th</sup> ACM SIGKDD International conference on knowledge discovery and data mining*. Pp. 1699-1708. <http://dx.doi.org/10.1145/2623330.2623364>
- Roche, B., **J.M. Drake**, J. Brown, D. Stallknecht, T. Bedford & P. Rohani. 2014. Adaptive evolution and environmental durability jointly structure phylodynamic patterns in avian influenza viruses. *PLoS Biology* 12:e1001931. <http://dx.doi.org/10.1371/journal.pbio.1001931>
- Dallas, T. & **J.M. Drake**. 2014. The relative importance of environmental and physical variables structuring zooplankton metacommunities. *Ecosphere* 5:104. <http://dx.doi.org/10.1890/ES14-00071.1>
- Maher, S., A. Guisan, C. Randin & **J.M. Drake**. 2014. Pattern recognition ecological niche models fit to presence-only and presence-absence data. *Methods in Ecology & Evolution*. 5:761-770 <http://dx.doi.org/10.1111/2041-210X.12222/>
- Drake, J.M.** & J.C. Beier. 2014. Ecological niche and potential distribution of *Anopheles arabiensis* in Africa in 2050. *Malaria Journal* 13:213. <http://dx.doi.org/10.1186/1475-2875-13-213>
- Krkošek, M. & **J.M. Drake**. 2014. On signals of phase transitions in salmon population dynamics. *Proceedings of the Royal Society, Series B* 281:20133221. <http://dx.doi.org/10.1098/rspb.2013.3221>
- Wittmann, M., C. Jerde, J. Howerth, S. Maher, A. Deines, G. Whitley, S. Burbank, W. Chadderton, A. Mahon, J. Tyson, C. Gantz, R. Keller, **J.M. Drake**, & D.M. Lodge. 2014. Re-evaluating the invasion risk of a biological control agent (grass carp *Ctenopharyngodon idella*): Reducing ecological uncertainty with improved risk assessment in the Great Lakes basin. *Canadian Journal of Fisheries & Aquatic Sciences* 71:992-999. <http://dx.doi.org/10.1139/cjfas-2013-0537>
- Drake, J.M.** 2014. Ensemble algorithms for ecological niche modeling from presence background and presence-only data. *Ecosphere* 5:76. <http://dx.doi.org/10.1890/ES13-00202.1>
- Kramer, A.P. & **J.M. Drake**. 2014. Time to competitive exclusion. *Ecosphere* 5:52. <http://dx.doi.org/10.1890/ES14-00054.1>
- Drake, J.M.** 2014. Tail probabilities of extinction time in a large number of experimental populations. *Ecology* 95:1119-1126. <http://dx.doi.org/10.1890/13-1107.1>

Brown, V.L., **Drake, J.M.**, Stallknecht, D.E., Brown, J.D., H. Barton, Pedersen, K. & Rohani, P. 2014. Neutrality, cross-immunity and subtype dominance in avian influenza viruses. *PLoS One* 9:388817. <http://dx.doi.org/10.1371/journal.pone.0088817>

Dallas, T., & **J.M. Drake**. 2014. Nitrate enrichment alters a *Daphnia*-microparasite interaction through multiple pathways. *Ecology & Evolution* 4:243-250. <http://dx.doi.org/10.1002/ece3.925>

Barton, H., P. Rohani, D. Stallknecht, J. Brown & **J.M. Drake**. 2014. Subtype diversity and reassortment potential for co-circulating avian influenza viruses at a diversity hot spot. *Journal of Animal Ecology* 83:566-575. <http://dx.doi.org/10.1111/1365-2656.12167>

2013

Kramer, A.P., F. Dobbs, & **J.M. Drake**. 2013. Bacterial colonization and extinction on marine aggregates: stochastic model of species presence and abundance. *Ecology & Evolution* 3:4300-4309. <http://dx.doi.org/10.1002/ece3.789>

**Drake, J.M.**, & B.D. Griffen. 2013. Experimental demonstration of accelerated extinction time in source-sink metapopulations. *Ecology & Evolution* 3:3369-3378. <http://dx.doi.org/10.1002/ece3.713>

**Drake, J.M.** 2013. Early warning signals of stochastic switching. *Proceedings of the Royal Society, Series B* 280:20130686. <http://dx.doi.org/10.1098/rspb.2012.0686>

**Drake, J.M.**, A.N. Hassan, & J.C. Beier. 2013. A statistical model of Rift Valley fever activity in Egypt. *Journal of Vector Ecology* 38:251-259. <http://dx.doi.org/10.1111/j.1948-7134.2013.12038.x>

O'Regan, S.M. & **J.M. Drake**. 2013. Theory of early warning signals of disease emergence and leading indicators of elimination. *Theoretical Ecology* 6:333-357.

Bhatt, S., Gething, P.W., Brady, O.J., Messina, J.P., Farlow, A.W., Moyes, C.L., **Drake, J.M.**, Brownstein, J.S., Hoen, A.G., Sankoh, O., Myers, M.F., George, D.B., Jaenisch, T., Wint, G.R.W., Simmons, C.P., Scott, T.W., Farrar, J.J., and Hay, S.I. 2013. The global distribution and burden of dengue. *Nature* 496:504-507.

Robinson, J.R., J.P. Wares & **J.M. Drake**. 2013. Extinction hazards in experimental *Daphnia magna* populations: effects of genotype diversity and environmental variation. *Ecology & Evolution* 3(2):233-243.

Brown, V.L., **J.M. Drake**, D.E. Stallknecht, J.D. Brown, K. Pedersen, & P. Rohani. 2013. Dissecting a wildlife disease hotspot: the impact of multiple host species, environmental transmission and seasonality in migration, breeding and mortality. *Journal of the Royal Society Interface* 10(79):20120804.

2012

Maher, S.P., A.M. Kramer, J.T. Pulliam, M.A. Zokan, S.E. Bowden, H.D. Barton, K. Magori, & **J.M. Drake**. 2012. Spread of white-nose syndrome on a network regulated by geography and climate. *Nature Communications* 3:1306.

Schmidt, J.P., P. Stephens, & **J.M. Drake**. 2012. Two sides of the same coin? Rare and invasive plants native to North America. *Ecological Applications* 22:1512-1525. Available online: doi:10.1890/11-1915.1

Schmidt, J.P., M. Springborn, & **J.M. Drake**. 2012. Bioeconomic forecasting of invasive species by ecological syndrome. *Ecosphere* 3:art46. <http://dx.doi.org/doi:10.1890/ES12-00055.1>

**Drake, J.M.** & A.M. Kramer. 2012. Mechanistic analogy: How microcosms explain nature. *Theoretical Ecology* 5:433-444. <http://dx.doi.org/doi:10.1007/s12080-011-0134-0>

Rohani, P., & **J.M. Drake**. 2011. The decline and resurgence of pertussis in the US. *Epidemics* 3:183-188.

Magori, K., W. Bajwa, \*S. Bowden, & **J.M. Drake**. 2011. Decelerating spread of West Nile virus due to percolation in a heterogeneous, urban landscape. *PLoS Computational Biology* 7: e1002104. <http://dx.doi.org/doi:10.1371/journal.pcbi.1002104>

**Drake, J.M.**, \*J. Shapiro, & B.D. Griffen. 2011. Experimental demonstration of a two-phase population extinction hazard. *Journal of the Royal Society Interface* 63:1472-1479. <http://dx.doi.org/10.1098/rsif.2011.00247>

B. Roche, **J.M. Drake**, & P. Rohani. 2011. The curse of the pharaoh revisited: Implications for polymorphism increase and the emergence of highly virulent avian influenza. *Ecology Letters* 14:569-575. <http://dx.doi.org/10.1111/j.1461-0248.2011.01619.x>

Schmidt, J.P., & **J.M. Drake**. 2011. Why are some plant genera more invasive than others? *PLoS One* 6:e18654. <http://dx.doi.org/doi:10.1371/journal.pone.0018654>

Roche, B., **J.M. Drake**, & P. Rohani. 2011. An agent-based model to study the epidemiological and evolutionary dynamics of influenza viruses. *BMC Bioinformatics* 12:87. <http://dx.doi.org/10.1186/1471-2105-12-87>

Schmidt, J.P., & **J.M. Drake**. 2011. Time since introduction, seed mass, and genome size predict successful invaders among the cultivated vascular plants of Hawaii. *PLoS One* 6:e17391. <http://dx.doi.org/doi:10.1371/journal.pone.0017391>

\*Bowden, S., K. Magori, & **J.M. Drake**. 2011. Regional differences in the association between land cover and West Nile virus incidence in humans. *American Journal of Tropical Medicine and Hygiene* 84:234-238.

Pulliam, H.R., **J.M. Drake**, & J.R.C. Pulliam. 2011. On estimating demographic and dispersal parameters for niche and source-sink models. Pp. 183-215 in *Sources, Sinks, and Sustainability Across Landscapes*. J. Liu, V. Hull, and A. Morzillo, eds. Cambridge University Press.

Vercken, E., A. Kramer, P. Tobin, & **J.M. Drake**. 2011. Critical patch size generated by Allee effect in Gypsy moth (*Lymantria dispar* L.) *Ecology Letters* 14:179-186. <http://dx.doi.org/10.1111/j.1461-0248.2010.01569.x>

Keller, R.K., **J.M. Drake**, M. Drew, & D.M. Lodge. 2011. Linking environmental conditions and ship movements to estimate invasive species transport across the global shipping network. *Diversity & Distributions* 17:93-102. <http://dx.doi.org/doi:10.1111/j.1472-4642.2010.00696.x>

**Drake, J.M.**, & B.D. Griffen. 2010. Early warning signals of extinction in deteriorating environments. *Nature* 467:456-459. <http://dx.doi.org/doi:10.1038/nature09389>

Lyons, M. M., J. E. Ward, H. Gaff, R. Hicks, **J.M. Drake**, F.C. Dobbs. 2010. Theory of island biogeography on a microscopic scale: are organic aggregates islands for aquatic pathogens? *Aquatic Microbial Ecology* 60:1-13.

Breban, R., **J.M. Drake**, & P. Rohani. 2010. A general multi-strain model with environmental transmission: Invasion conditions for the disease-free and endemic states. *Journal of Theoretical Biology* 264:729-736.

Kramer, A.M., & **J.M. Drake**. 2010. Experimental demonstration of population extinction due to a predator-driven Allee effect. *Journal of Animal Ecology* 79:633-639. Also see "In Focus" *Journal of Animal Ecology* 79:511-514.

- Griffen, B.D., & **J.M. Drake**. 2009. Environment, but not migration rate, influences extinction risk in experimental metapopulations. *Proceedings of the Royal Society, Series B* 276:4363-4371.
- Rohani, P., R. Breban, D. Stallknecht, & **J.M. Drake**. 2009. Environmental transmission of low pathogenicity avian influenza viruses and its implications for pathogen invasion. *Proceedings of the National Academy of Sciences USA* 106:10365-10369.
- Drake, J.M.** 2009. Evolutionary relationships among human-isolated and wildlife-isolated West Nile viruses. *Infection, Genetics and Evolution* 9:1392-1393. <http://dx.doi.org/doi:10.1016/j.meegid.2009.07.008>
- Drake, J.M.**, & B.D. Griffen. 2009. The speed of expansion and extinction in experimental populations. *Ecology Letters* 12:772-778.
- Drake, J.M.**, & J.M. Bossenbroek. 2009. Profiling ecosystem vulnerability to invasion by zebra mussels with support vector machines. *Theoretical Ecology* 2:189-198. <http://dx.doi.org/10.1007/s12080-009-0050-8>
- Breban, R., **J.M. Drake**, D. Stallknecht, & P. Rohani. 2009. The role of environmental transmission in recurrent avian influenza epidemics. *PLoS Computational Biology* 5:e1000346.
- Kramer, D., B. Dennis, S. Liebhold, & **J.M. Drake**. 2009. The evidence for Allee effects. *Population Ecology* 51:341-354.
- Griffen, B.D., & **J.M. Drake**. 2009. Scaling rules for the final decline to extinction. *Proceedings of the Royal Society, Series B* 276:1361-1367.
- E. Pardini, **J.M. Drake**, J.M. Chase, T. Knight. 2009. Complex population dynamics and control of the invasive biennial *Alliaria petiolata* (garlic mustard). *Ecological Applications* 19:387-397.
- R.P. Keller, & **J.M. Drake**. 2009. Trait-based risk assessment for invasive species. Pp. 44-62 in R.P. Keller, D.M. Lodge, M.A. Lewis, and J.F. Shogren (eds) *Bioeconomics of Invasive Species*. Oxford University Press.
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- Drake, J.M.**, & C.L. Jerde. 2009. Stochastic models of propagule pressure and establishment. Pp. 83-102 in R.P. Keller, D.M. Lodge, M.A. Lewis, and J.F. Shogren (eds) *Bioeconomics of Invasive Species*. Oxford University Press.

- Griffen, B., & **J.M. Drake**. 2008. Effects of habitat size and quality on extinction in experimental populations. *Proceedings of the Royal Society, Series B* 275:2251-2256.
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- Adler, P., & **J.M. Drake**. 2008. Environmental variability, stochastic extinction, and competitive coexistence. *American Naturalist* 172:E186-E195.
- Hendrix, P.F., M.A. Callahan, **J.M. Drake**, C.-Y. Huang, S.W. James, B.A. Snyder, & W. Zhang. 2008. Pandora's box contained bait: the global problem of introduced earthworms. *Annual Review of Ecology, Evolution, & Systematics* 29:593-613.
- Drake, J.M.**, E.E. Cleland, C. Bowles, K. Carney, M.C. Horner-Devine, S. Emery, J. Gramling, M.D. Smith, D.B. Vandermast, E. Fleishman, & J.B. Grace. 2008. Do non-native plant species affect the shape of productivity-diversity relationships? *American Midland Naturalist* 159:55-66.

2007

**Drake, J.M.**, & D.M. Lodge. 2007. Hull fouling is a risk factor for intercontinental species exchange in aquatic ecosystems. *Aquatic Invasions* 2:121-131.

**Drake, J.M.** 2007. Parental investment and fecundity, but not brain size, are associated with establishment success in introduced fishes. *Functional Ecology* 21:963-968.

Drury, K.L.S., **J.M. Drake**, D.M. Lodge, & G. Dwyer. 2007. Immigration events dispersed in space and time: factors affecting immigration success. *Ecological Modelling* 206:63-78.

C. Costello, **J.M. Drake**, & D.M. Lodge. 2007. Evaluating the effectiveness of environmental management: ballast water exchange in the North American Great Lakes. *Ecological Applications* 17:655-662.

**Drake, J.M.**, & D.M. Lodge. 2007. Rates of species introduction in the Great Lakes via ships' ballast water and sediments. *Canadian Journal of Fisheries and Aquatic Sciences* 64:530-538.

Keller, R.P., **J.M. Drake**, & D.M. Lodge. 2007. Fecundity as a basis for risk assessment of nonindigenous freshwater mollusks. *Conservation Biology* 21:191-200.

2006

**Drake, J.M.**, S.K. Chew, & S. Ma. 2006. Societal learning in emerging epidemics: effectiveness of interventions in the 2003 SARS outbreak in Singapore. *PLoS One* 1(1):e20.

**Drake, J.M.** 2006. Extinction times in experimental populations. *Ecology* 87:2215-2220.

**Drake, J.M.** 2006. Heterosis, the catapult effect, and establishment success of a colonizing bird. *Biology Letters* 2:304-307.

**Drake, J.M.** 2006. Limits to forecasting precision for outbreaks of directly transmitted diseases. *PLoS Medicine* 3:57-62.

**Drake, J.M.**, & D.M. Lodge. 2006. Allee effects, propagule pressure and the probability of establishment: Risk analysis for biological invasions. *Biological Invasions* 8:365-375.

**Drake, J.M.**, & D.M. Lodge. 2006. Forecasting potential distributions of non-indigenous species with a genetic algorithm. *Fisheries* 31:9-16.

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**Drake, J.M.**, A. Guisan, and C. Randin. 2006. Modelling ecological niches with support vector machines. *Journal of Applied Ecology* 43:424-432. <http://dx.doi.org/doi:10.1111/j.1365-2664.2006.01141.x>

Vellend, M., T.M. Knight, & **J.M. Drake**. 2006. Antagonistic effects of seed dispersal and herbivory on plant migration. *Ecology Letters* 9:319-326.

**Drake, J.M.**, K.L.S. Drury, D.M. Lodge, A. Blukacz, N. Yan, & G. Dwyer. 2006. Demographic stochasticity, environmental variability, and windows of invasion risk for *Bythotrephes longimanus* in North America. *Biological Invasions* 8:843861. <http://dx.doi.org/doi:10.1007/s10530-005-4205-2>



2005

**Drake, J.M.**, \*P. Baggenstos, & D.M. Lodge. 2005. Propagule pressure and persistence in experimental populations. *Biology Letters* 1:480-483.

**Drake, J.M.** 2005. Population effects of increased climate variation. *Proceedings of the Royal Society, Series B* 272:1823-1827.

**Drake, J.M.** 2005. Density dependent demographic variation determines extinction rate of experimental populations. *PLoS Biology* 3:1300-1304.

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**Drake, J.M.**, D.M. Lodge, & M. Lewis. 2005. Theory and preliminary analysis of species invasions from ballast water: controlling discharge volume and location. *American Midland Naturalist* 154:459-470.

**Drake, J.M.** 2005. Risk analysis for invasive species and emerging infectious diseases: concepts and applications. *American Midland Naturalist* 153:4-19.

2004

Cleland, E.E., M. D. Smith, S.J. Andelman, C. Bowles, K.M. Carney, M.C. Horner-Devine, **J.M. Drake**, S. M. Emery, J. Gramling, & D.B. Vandermast. 2004. Invasion in space and time: non-native species richness and relative abundance respond to interannual variation in productivity and diversity. *Ecology Letters* 7:947-957.

**Drake, J.M.** & J.M. Bossenbroek. 2004. The potential distribution of zebra mussels in the United States. *BioScience* 54:931-941.

**Drake, J.M.** 2004. Allee effects and the risk of biological invasion. *Risk Analysis* 24:795-802.

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2003

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**Drake, J.M.** 2003. Why does grassland productivity increase with species richness? Disentangling species richness and composition with tests for overyielding and superyielding in biodiversity experiments. *Proceedings of the Royal Society, Series B* 270:1713-1719.

MANUSCRIPTS  
SUBMITTED

T. Dallas, R.J. Hall, & **J.M. Drake**. Competition-mediated feedbacks in experimental multi-species epizootics. Submitted to *Ecology*.

T. Dallas, M. Krkosek, & **J.M. Drake**. Experimental evidence of pathogen invasion threshold in a *Daphnia*-microparasite system. Submitted to *Proceedings of the Royal Society, Series B*.

Han, B., J.P. Schmidt, S. Bowden, & **J.M. Drake**. Rodent reservoirs of future zoonotic diseases. Submitted to *Proceedings of the National Academy of Sciences USA*.

**Drake, J.M.**, I. Bakach, M.R. Just, S.M. O'Regan, M. Gambhir, I. C.-H. Fung. Transmission models of historic Ebola outbreaks: a review. Submitted to *Emerging Infectious Diseases*.

\*Indicates  
undergraduate  
or high school  
author

Schmidt, J.P., P. Stephens, & **J.M. Drake**. Genome size and ploidy predict invasion success of angiosperm introductions to Australia. Submitted to *Molecular Ecology*.

Maher, S.P., M.E. Wittmann, R. de Triquet, W.L. Chadderton, D.M. Lodge, & **J.M. Drake**. Potential distribution of two species of Asian carp in the contiguous United States. Submitted to *Diversity & Distributions*.

Hefley, T.J., & **J.M. Drake**. Time series analysis for detection of an extinction threshold in deteriorating environments. Submitted to *Ecology*.

Dallas, T., \*M. Holtackers, & **J.M. Drake**. Costs of resistance and infection in a *Daphnia*-microparasite system. Submitted to *Functional Ecology*.

O'Regan, P. Rohani, & **J.M. Drake**. Tipping points in infectious disease dynamics: Transient analysis of seasonal and non-seasonal immunizing infections on the verge of eradication. Submitted to *American Naturalist*.

**Drake, J.M.**, G. Akudibillah, \*S. Bowden, R.J. Hall, A. Kramer, K. Magori, J.P. Schmidt, A. Silletti, E. Vercken, & M. Zokan. Computational training in ecology and evolutionary biology. Submitted to *Bioscience*.

**Drake, J.M.** & R.P. Keller. Ecology of invasive species. Submitted to *Nature Knowledge Project*.

**Drake, J.M.** Multi-scale evolution of case fatality rate in West Nile virus. Submitted to *PLoS Computational Biology*.

**Drake, J.M.** Range bagging: a new method for ecological niche modeling from high-dimensional presence-only data. Submitted to *Journal of the Royal Society Interface*.

**Drake, J.M.** Early warning signals of dynamic bifurcation in the emergence of Monkeypox virus. Submitted to *Proceedings of the Royal Society, Series B*.

#### PUBLISHED DATA

\***Drake, J.M.**, & B.D. Griffen. 2015. Data from: Early warning signals of extinction in deteriorating environments. *Dryad Digital Repository*. Dryad Digital Repository. <http://dx.doi.org/10.5061/dryad.q3p64>

\***Drake, J.M.**, R.B. Kaul, L.W. Alexander, S.M. O'Regan, A.M. Kramer, J.T. Pulliam, M.J. Ferrari, & A.W. Park. 2015. Data from: Ebola cases and health system demand in Liberia. *Dryad Digital Repository*. Dryad Digital Repository. <http://dx.doi.org/10.5061/dryad.17m5q>

\*Roche, B., **J.M. Drake**, J. Brown, D.E. Stallknecht, T. Bedford, & P. Rohani. 2014. Data from: Adaptive evolution and environmental durability jointly structure phylodynamic patterns in avian influenza viruses. Dryad Digital Repository. <http://dx.doi.org/10.5061/dryad.8ct18>

\*Barton, H.D., P. Rohani, D.E. Stallknecht, J. Brown, & **J.M. Drake**. 2014. Data from: Subtype diversity and reassortment potential for co-circulating avian influenza viruses at a diversity hot spot. *Dryad Digital Repository*. <http://dx.doi.org/10.5061/dryad.nm70b>

\***Drake, J.M.** & B.D. Griffen. 2013. Data from: Experimental demonstration of accelerated extinction in source-sink metapopulations. *Dryad Digital Repository*. <http://doi:10.5061/dryad.7f297>

\*Costello, C., J.M. Drake & D.M. Lodge. 2007. Data from: Evaluating an invasive species policy: ballast water exchange in the Great Lakes. *Ecological Archives*. <http://esapubs.org/archive/appl/A017/027/>

\***Drake, J.M.** 2006. Data from: Extinction times in experimental populations. *Ecological Archives*. <http://www.esapubs.org/archive/ecol/E087/135/>

\*Open access



\*Miller, P & **Drake, J.M.**. 2015. Using the power patio as an early warning signal to detect critical transitions for disease emergence and eradication. Emerging Researchers National (ERN) Conference in Science, Technology, Engineering and Mathematics. February 19-21, 2015, Washington D.C. (Presentation)

H\*umphrey, T., T. Dallas, & **Drake, J.M.**. 2015. Effects of pH and temperature variability on pathogen development and population survival in *Daphnia*. Emerging Researchers National (ERN) Conference in Science, Technology, Engineering and Mathematics. February 19-21, 2015, Washington D.C. (Presentation)

**Drake, J.M.** Knowledge integration for the environmental sciences. University of Georgia second annual Sustainable Science Symposium. January 23, 2015. (Presentation)

Meyer, N.J., E.B. Laber, K. Pacifici, B.J. Reich, & **J.M. Drake**. An adaptive control strategy for the West Africa Ebola outbreak. Modeling the Spread and Control of Ebola in West Africa – A Rapid Response Workshop. Atlanta, Georgia. January 22, 2015. (Poster)

\*Gray, D. & **Drake, J.M.**. 2014. Quantifying the performance of spatial and temporal early warning signals of disease elimination. American Biomedical Research Conference for Minority Students. November 12-15, 2014, San Antonio, TX.

Xu, J., T.L. Wickramaratne, R.P. Keller, **J.M. Drake**, D.M. Lodge, E. Grey, N.V. Chawla & K. Steinhäuser. Improving management of aquatic invasions by integrating shipping network, ecological, and environmental data: Data mining for social good. ACM SIGKDD, New York. August 24-27. (Presentation)

\*Patel, D., A.M. Kramer, & **J.M. Drake**. Predicting future spread during an outbreak using species distribution models. Ecological Society of America Annual Meeting. Sacramento, California. August 15, 2014. (Poster)

\*Righi, G., & **J.M. Drake**. Developing a model for a natural noise-induced phase transition in *Aphanizomenon flos-aquae*. Ecological Society of America Annual Meeting. Sacramento, California. August 14, 2014. (Poster)

**Drake, J.M.**, W. Bajwa, S.E. Bowden, & K. Magori. Variation in outbreak size during the transition to endemicity: West Nile virus in New York City. Ecological Society of America Annual Meeting. Sacramento, California. August 12, 2014. (Presentation)

Barnum, T., J.T. Wootton, R.J. Bixby, **J.M. Drake**, J.C. Colon-Gaud, D. Stoker, A. Rugenski, T. Frauendorf, S.J. Connelly, S.S. Kilham, M.R. Whiles, K. Lips. Explaining why grazing mayflies do not functionally compensate for the top-down control of algal communities following disease-driven tadpole declines in a Neotropical stream. Ecological Society of America Annual Meeting. Sacramento, California. August 11, 2014. (Presentation)

Kaul, R.B., A.M. Kramer, F.C. Dobbs, & **J.M. Drake**. Allee effects: Scaling down to the microbial level. Ecological Society of America Annual Meeting. Sacramento, California. August 11, 2014. (Presentation)

Dallas, T., **J.M. Drake**, & M. Krkosek. Thresholds to pathogen invasion: theory + experiment. Ecological Society of America Annual Meeting. Sacramento, California. August 11, 2014. (Presentation)

Bowden, S.E., & **J.M. Drake**. Effects of density dependence and competition on development of larval mosquitoes. Ecological Society of America Annual Meeting, Sacramento, California. August 12, 2014. (Presentation)

Han, B.A., S.E. Bowden, J.P. Schmidt, & **J.M. Drake**. Predicting bat reservoirs of future zoonotic diseases. Ecological Society of America Annual Meeting, Sacramento, California. August 2014. (Presentation)

Dallas, T. & **J.M. Drake**. Costs of resistance and infection in *Daphnia* species exposed to a generalist microparasite. Ecology and Evolution of Infectious Disease Conference. Fort Collins, Colorado. June 3-4, 2014. (Presentation)

Kramer, A.M., G. Annis, M. Wittmann, W.L. Chadderton, E. Rutherford, L. Mason, & **J.M. Drake**. Predicting potential distribution of invasive species using range bagging: golden mussel and killer shrimp in the Great Lakes. Joint Aquatic Sciences Meeting. Portland, Oregon. May 2014. (Presentation)

O'Regan, S.M. & **J.M. Drake**. Early warning signals of disease emergence and leading indicators of elimination. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

**Drake, J.M.** New computational methods for modeling species potential distributions. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

Han, B.A. and **J.M. Drake**. Rodent reservoirs of future zoonotic pathogens. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

Barnum, T.R., **J.M. Drake**, C. Colon-Gaud, A.T. Rugenski, T.C. Frauendorf, S. Connelly, S.S. Kilham, M.R. Whiles, K.R. Lips, and C.M. Pringle. Food web properties persist following amphibian extirpations in a Neotropical stream. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

Dallas, T. and **J.M. Drake**. The influence of nitrate and pathogen dose on infection dynamics and host traits in a *Daphnia*-microparasite system. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

Kramer, A.M. M.M. Lyons, F.C. Dobbs, and **J.M. Drake**. Tiny islands: Colonization and extinction of microbial species on marine aggregates. Ecological Society of America, Minneapolis. August 4-9, 2013. (Presentation)

Hackett, E., J. Parker, U. Cote, **J.M. Drake**, S. Hampton, E. Leahey, C. McClain, B. Penders, I. Rafols, S. Rebich Hespanha, L. Sheble, N. Vermueulen, T. Vision. Stumbling in a complex new direction: notes from underwater. Annual Meetings of the Society for Social Studies of Science, San Diego, California. October 2013. (Presentation)

The sensible science working group (Hackett, E., J. Parker, U. Cote, **J.M. Drake**, S. Hampton, E. Leahey, C. McClain, B. Penders, I. Rafols, S. Rebich Hespanha, L. Sheble, N. Vermueulen, T. Vision). Assessing synthesis and synthesis centers. First Global Meeting of Synthesis Center Directors, Aix en Provence, France. October 2013. (Invited presentation)

Barnum, T., **J.M. Drake**, C. Colon-Gaud, A. Rugenski, T. Frauendorf, S.S. Kilham, M.R. Whiles, K.R. Lips and C.M. Pringle. 2013. Consequences of catastrophic amphibian declines on the food web attributes of a tropical stream. Annual Meeting of the Society for Freshwater Science, Jacksonville, FL. May 19-23, 2013 (Presentation)

Kramer, A.M., J. E. Ward, M. Pierce, F. Dobbs, **J.M. Drake**. Understanding the contribution of marine aggregate-associated bacteria to pathogen load in oysters using an agent-based model. Association for the Sciences of Limnology and Oceanography, Annual Conference, New Orleans, LA. February 2013. (Presentation).

Kramer, A.M., J. E. Ward, M. Pierce, F. Dobbs, **J.M. Drake**. The contribution of marine aggregate-associated bacteria to pathogen load in oysters: an agent-based model. NSF Ecology and Evolution of Infectious Disease PI meeting, Athens, GA. March 16-18, 2013. (Poster)

Maher, S.P., **J.M. Drake**, M.E. Wittmann, R. de Triquet, W.L. Chadderton, D.M. Lodge. 2012. Forecasting the distribution of two species of Asian carp using native and non-native range information. Ecological Society of American, Annual Conference, Portland OR. August 5-10, 2012. (Presentation).

- Wittmann, M.E., C.L. Jerde, J.G. Howeth, S.P. Maher, **J.M. Drake**, W.L. Chadderton, A.R. Mahon, C.A. Gantz, R.P. Keller, D.M. Lodge. 2012. Reducing uncertainty in the perceived risk of grass carp (*Ctenopharyngodon idella*) invasion in the Great Lakes: Ploidy, distribution, and ecosystem impact. Ecological Society of American, Annual Conference, Portland OR. August 5-10, 2012. (Presentation).
- Kramer, A.M., J.T. Pulliam, S.P. Maher, **J.M. Drake**. 2012. Simplifying networks: Spread of White-nose syndrome in North America. Ecological Society of American, Annual Conference, Portland OR. August 5-10, 2012. (Presentation).
- O'Regan, S.M., K. Magori, J.T. Pulliam, M.A. Zokan, R.B. Kaul, H.D. Barton, **J.M. Drake**. 2012. Stochastic fade-out in space: Will microscale disease-induced mortality along geographic corridors inhibit the macroscale spread of White-nose Syndrome? Ecological Society of American, Annual Conference, Portland OR. August 5-10, 2012. (Presentation).
- Maher, S. P., T. Pulliam, M. Zokan, S. Bowden, H. Barton, K. Magori, **J.M. Drake**. 2012. Non-diffusive spread of White-nose Syndrome regulated by spatial heterogeneity and Climate. 92nd Annual Meeting of the American Society of Mammalogists. Reno, Nevada. June 22-26, 2012. (Presentation)
- Drake, J.M.** 2012. Early warning of critical transitions in emerging infectious diseases. Endemic and emerging infectious diseases of priority in the Middle East and North Africa Conference sponsored by National Institute of Allergy and Infectious Diseases (NIAID) and CRDF Global, June 18-21, 2012, Istanbul, Turkey. (Plenary presentation).
- Kaul, R.B., A.M. Kramer, F.C. Dobbs, **J.M. Drake**. 2012. Allee effects in experimental microbial systems. American Society for Microbiology, June 15-20, 2012, San Francisco, California. (Poster)
- Dobbs, F.C. J. E Ward, **J.M. Drake**, R. Hicks, M. M. Lyons, M. Pierce, A. Kramer, X. Zhao. 2012. Microscopic islands: Modeling the theory of island biogeography for aquatic pathogens colonizing organic aggregates. Ecology and Evolution of Infectious Diseases PI Meeting, March 26-28, 2012, Berkeley, California. (Poster)
- Lyons, M., D. Kramer, E. Ward, R. Hicks, **J.M. Drake**, F. Dobbs. 2011. Microscopic Islands: the role of organic aggregates in aquatic disease ecology. National Science Foundation Ecology of Infectious Diseases PI Meeting, March 27-28, 2011, Madison, Wisconsin. (Presentation)
- Zokan, M., J. Robinson, J. Wares, **J.M. Drake**. 2011. Cryptic species of Chydorus (Crustacea: Cladocera) in the Southeastern USA Evolution 2011, June 17-21, 2011, Norman, Oklahoma. (Poster)
- Drake, J.M.** 2011. Cost-sensitive machine learning algorithms for invasive species decision support, risk analysis, and policy. US Department of Agriculture, Economic Research Service Program on Economic Impacts of Invasive Species. 17 May 2011. (Presentation)
- Drake, J.M.** 2011. Computational methods for identifying structure in ecological networks. Ecological Society of America Annual Conference, Austin TX. 11 August 2011. (Presentation)
- Schmidt, J.P. & **J.M. Drake**. 2011. Rare and pest status among vascular plants: flip sides of the same coin? A preliminary analysis of the native flora of North America. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Presentation)
- Kramer, A.M. & **J.M. Drake**. 2011. Population variance and extinction of two competitors consuming a common resource. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Presentation)

- Bowden, S., **J.M. Drake**, K. Magori, & W. Bajwa. 2011. Statistical prediction of West Nile virus transmission intensity in New York City. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Presentation)
- Zokan, M. & **J.M. Drake**. 2011. Patterns of species diversity in a hyper-rich zooplankton community. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Poster)
- \*Stratmann, T., \*T. O'Sullivan, \*A. Channell, A. Kramer, M. Zokan, A. Silletti, **J.M. Drake**. 2011. Two paths to extinction: effect of deteriorating environments on extinction time and distribution. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Poster)
- Maher, S.P., **J.M. Drake**, A. Guisan, C.F. Randin. 2011. One-class and two-class classification as methods for ecological niche modeling. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Presentation)
- O'Regan, S.M. & **J.M. Drake**. 2011. Transient analysis of an SIR epidemic model. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Poster)
- Barton, H.D., P. Rohani, J.D. Brown, D.E. Stallknecht, and **J.M. Drake**. 2011. Subtype diversity and reassortment potential for avian influenza viruses at a diversity hotspot. Ecological Society of America Annual Conference, Austin TX. August 7-12, 2011. (Presentation)
- Kramer, A.M. & **J.M. Drake**. 2011. Stochastic colonization and extinction of microbial species on marine aggregates. NIMBioS Investigative Workshop: Individual-based Ecology of Microbes. National Institute for Mathematical and Biological Synthesis, University of Tennessee, June 2011. (Presentation)
- Dobbs, F.C., **J.M. Drake**, R. Hicks, E. Ward, M.M. Lyons, A. Kramer, M. Pierce, X. Zhao. 2011. Microscopic islands: Modeling the theory of island biogeography for aquatic pathogens colonizing organic aggregates. National Science Foundation Ecology of Infectious Diseases PI Meeting, March 27-28, 2011, Madison, Wisconsin. (Poster)
- Kramer, A., and **J.M. Drake**. 2011. Mechanistic model of bacterial persistence on marine aggregates. National Science Foundation Ecology of Infectious Diseases PI Meeting, March 27-28, 2011, Madison, Wisconsin. (Poster)
- Drake, J.M.**, K. Magori, \*K. Knoblich, W. Bajwa. 2011. Mapping the force-of-infection of West Nile virus in New York City. National Science Foundation Ecology of Infectious Diseases PI Meeting, March 27-28, 2011, Madison, Wisconsin. (Poster)
- Drake, J.M.** & B.D. Griffen. 2011. Early warning signals of extinction in a deteriorating environment. Gordon Research Conference on Stochastic Physics in Biology. Ventura, California. January 24-28, 2011. (Poster)
- Pacifici, K., **J.M. Drake**, W. Bajwa. 2010. A hierarchical Bayesian spatial model to evaluate the influence of covariates on the spatio-temporal dynamics of West Nile virus in New York City. International Statistical Ecology Conference 2010. University of Kent, Canterbury, Kent, UK. July 6-9, 2010. (Presentation).
- Roche, B., **J.M. Drake**, P. Rohani. 2010. Phylodynamics of influenza viruses: what is the role of environmental transmission. Ecology and evolution of infectious diseases 8th annual workshop and conference. Ithaca, New York. June 2-5, 2010. (Poster).
- Drake, J.M.**, K. Magori, W. Bajwa. 2010. Percolation-like spread of West Nile virus in New York City. International Association of Landscape Ecology, annual conference 2010, Athens, Georgia. (Invited presentation).
- Magori, K., \*K. Knoblich, W.I. Bajwa, **J.M. Drake**. 2010. Spatial variation in WNV vector distribution in NYC. International Association of Landscape Ecology, annual

conference 2010, Athens, Georgia. (Invited presentation).

\*Wong, A., W. Bajwa, **J.M. Drake**. 2010. Habitats of West Nile Virus Competent Mosquitoes: The Effects of Urbanization in New York City. University of Georgia Center for Undergraduate Research Opportunities Annual Conference, Athens Georgia. March 29, 2010. (Poster)

Kramer, A., E. Vercken, P.C. Tobin, **J.M. Drake**. 2010. Allee effects induce critical area for establishment in gypsy moth invasion. Ecological Society of America, annual conference 2010, Pittsburgh, Pennsylvania. (Presentation).

Magori, K., C. Michael and **J.M. Drake**. 2010. Multi-modal epidemics in multi-host pathogens. Ecological Society of America, annual conference 2010, Pittsburgh, Pennsylvania. (Presentation).

Bowden, S., K. Magori, and **J.M. Drake**. 2010. Regional differences in the association between land cover and West Nile virus incidence in humans in the United States. Ecological Society of America, annual conference 2010, Pittsburgh, Pennsylvania. (Poster).

**Drake, J.M.** and B.D. Griffen. 2010. Early warning signals of extinction in deteriorating environments. Ecological Society of America, annual conference 2010, Pittsburgh, Pennsylvania. (Presentation).

Schmidt, J.P., and **J.M. Drake**. 2010. Cost-sensitive risk assessment for invasive plant species in the United States. Ecological Society of America, annual conference 2010, Pittsburgh, Pennsylvania. (Presentation).

**Drake, J.M.** 2010. How do microcosms tell us about nature? Notes toward a mechanistic understanding of population extinction. Sustainable conservation: bridging the gap between discipline, special conference. Trondheim, Norway, March 15-18, 2010. (Invited presentation.)

Dobbs, F., **J.M. Drake**, J.E Ward, R.E. Hicks. 2010. Microscopic islands: Modeling the theory of island biogeography for aquatic pathogens colonizing marine aggregates. NSF Ecology of Infectious Diseases Network Meeting, Atlantic City, New Jersey. March 22-25, 2010 (Poster).

Magori, K., C. Michael, **J.M. Drake**. Multi-modal Epidemics in Multi-host Pathogens. NSF Ecology of Infectious Diseases Network Meeting, Atlantic City, New Jersey. March 22-25, 2010 (Poster).

**Drake, J.M.** 2010. Patterns in the case fatality rate of West Nile virus in North America: Evidence for directional changes in virulence? NSF Ecology of Infectious Diseases Network Meeting, Atlantic City, New Jersey. March 22-25, 2010 (Invited presentation).

Lyons, M.M., J.E. Ward, H. Gaff, R. Hicks, **J.M. Drake**, F.C. Dobbs. 2010. Theory of island biogeography on a microscopic scale: Are organic aggregates islands for aquatic pathogens? Ocean Sciences, Portland, Oregon. March 24, 2010. (Poster).

**Drake, J.M.**, K. Magori, W. Bajwa. 2009. Percolation-like spread of West Nile virus in New York City. Ecological Society of America, annual conference 2009, Albuquerque, New Mexico. (Presentation).

Magori, K., W. Bajwa, \*S. Bowden, J. Drake. 2009. Decelerating spread of West Nile virus due to percolation in a heterogeneous, urban landscape. Ecology and evolution of infectious diseases 7th annual workshop and conference. Athens, Georgia. May 21-22, 2009. (Poster).

\*Bowden, S., and **J.M. Drake**. West Nile Virus in New York City: Using Birds as an Indicator of Spatio-temporal Distribution. University of Georgia Center for Undergraduate Research Opportunities Symposium, Athens, Georgia. April 6, 2009. (Poster).

- Drake, J.M.**, and W. Bajwa. 2009. Percolation-like spread of West Nile virus in New York City. NSF Ecology of Infectious Diseases Network Meeting, Park City, Utah. March 30-April 2, 2009 (Invited presentation).
- Drake, J.M.** 2009. Shrinking degrees of separation among the world's ports. AAAS, annual conference 2009, Chicago, Illinois. (Invited presentation).
- Drake, J.M.**, K. Magori, W. Bajwa. 2008. Population dynamics of West Nile Virus in New York City (1999-2007). EPIDEMICS - the inaugural conference on infectious disease dynamics. Asilomar Conference Grounds, Monterey, CA December 1, 2008. (Presentation).
- Magori, K., **J.M. Drake**, \*S. Bowden, C. Michael, W. Bajwa. Bites in the Big Apple: Ecology of West Nile Virus in New York City. UGA-CDC Collaborative Research Forum, CDC Headquarters, September 4, 2008. (Poster).
- Magori, K., J. Drake, \*S. Bowden, C. Michael, W. Bajwa. Bites in the Big Apple: Ecology of West Nile Virus in New York City. EPIDEMICS - the inaugural conference on infectious disease dynamics. Asilomar Conference Grounds, Monterey, CA December 1, 2008 (Poster).
- Drake, J.M.**, and B.D. Griffen. 2008. Extinction in experimental populations: effects of habitat quality, size, and metapopulation configuration. Ecological Society of America, annual conference 2008, Milwaukee, Wisconsin (Presentation).
- Drake, J.M.**, K. Magori, W. Bajwa. 2008. Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). Ecology and Evolution of Infectious Diseases Conference 2008, Fort Collins, Colorado. June 5-8, 2008. (Poster).
- Drake, J.M.**, W. Bajwa, and K. Magori. 2008. Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). University of Georgia, Global Health Symposium 2008, Athens, Georgia. April 21-22, 2008. (Poster).
- \*Shapiro, J. & **J.M. Drake**. 2008. Effects of initial population size and food quality on stochastic population persistence. University of Georgia Center for Undergraduate Research Opportunities Symposium, Athens, Georgia. March 31, 2008. (Poster).
- Drake, J.M.** 2007. West Nile virus in New York City. Ecology of Infectious Disease, PI meeting, Albuquerque, New Mexico. (Poster).
- Drake, J.M.** 2007. Accuracy and uncertainty in environmental niche modeling. Ecological Society of America, annual conference 2007, San Jose, California. (Invited presentation).
- Drake, J.M.**, S. Chew, & S. Ma. 2006. Social learning in emerging epidemics: intervention effectiveness in the 2003 SARS outbreak in Singapore. Ecological Society of America, annual conference 2006, Memphis, Tennessee. (Presentation).
- Drake, J.M.**, T. Knight, & J. Chase. 2005. When management might backfire: density-dependent population dynamics of the invasive biennial *Alliaria petiolata* (Garlic Mustard). Ecological Society of America, annual conference 2005, Montreal, Canada. (Presentation).
- Drake, J.M.**, D.M. Lodge, K.L.S. Drury, A. Blukacz, and N. Yan. 2004. Modeling windows of invasion risk for spiny water flea (*Bythotrephes longimanus*) in North America with a nonhomogeneous birth death process. Ecological Society of America, annual conference 2004, Portland, Oregon. (Presentation).
- Drake, J.M.**, D.M. Lodge. 2004. Global Hotspots of Biological Invasion: Evaluating Options for Ballast Water Management. Presented at American Institute of Biological Sciences, annual conference, Washington D.C. March 2004. (Poster).
- Drake, J.M.** 2004. Risk analysis for invasive species and emerging infectious diseases: concepts and applications. 24th annual Midwest Ecology and Evolution Conference,



Notre Dame, Indiana. 7 March 2004. (Presentation).

**Drake, J.M.** 2003. The measurement of biological diversity, 1943-1982. International Society for the History, Philosophy, and Social Studies of Biology biannual conference, Vienna, Austria, July 16-20, 2003. (Presentation).

**Drake, J.M.**, M.A. Lewis, and D.M. Lodge. 2003. Policy Recommendations for Ballast Water Standards. 12th Annual Aquatic Nuisance Species Conference, 2003, Windsor, Ontario. (Presentation).

**Drake, J.M.**, D.M. Lodge and N. Yan. 2002. Allee effects and the success of colonizing species: *Bythotrephes longimanus* in North America. Ecological Society of America, annual conference 2002, Tucson, Arizona. (Presentation).

**Drake, J.M.**, D.M. Lodge, K.L.S. Drury and G. Dwyer. 2002. Predicting invasion success: Deriving standards for ballast water from theoretical models. 11th Annual Aquatic Nuisance Species Conference, 2002, Washington D.C. (Presentation).

**Drake, J.M.**, D.M. Lodge, N. Yan. 2001. Why it takes more than one *Bythotrephes* to cause an invasion. "Risk Assessment for Invasive Species: Perspectives from Theoretical Ecology" a joint workshop of the Ecological Society of America and the Society for Risk Analysis, New Mexico State University, Las Cruces, New Mexico, 21-23 October 2001. (Poster).

**Drake, J.M.**, D.M. Lodge, K.L.S. Drury and G. Dwyer. 2001. Predicting invasion success: Applying probabilistic models of population growth to invading species. International Association of Great Lakes Research annual conference 2001, Green Bay, Wisconsin. (Presentation).

**Drake, J.M.**, D.M. Lodge, K.L.S. Drury and G. Dwyer. 2001. Predicting the success of invading species: applying stochastic models of population growth and the role of Allee effects. Society for Conservation Biology annual conference 2001, Hilo, Hawaii. (Presentation).

INVITED SEMINARS "The Ecology of Ebola". Odum School of Ecology, University of Georgia. 27 January 2015.

"Ebola cases and health system demand in Liberia". US Centers for Disease Control & Prevention, Atlanta, Georgia. 14 January 2015.

"Spread of White-nose Syndrome in a heterogeneous spatial network". Department of Biology, Kennesaw State University. 30 September 2014.

"Early warning signals of emerging infectious diseases". Georgia Southern University, Epidemiology Department. 12 September 2014.

"Spread of White-nose syndrome on a spatial network". Grambling State University, Biology Department. 23 January 2014.

"Population biology of infectious diseases". Philander-Smith College, Division of Natural and Physical Sciences. 24 January 2014.

"Spread of White-nose syndrome on a spatial network". University of Arkansas Little Rock, Department of Biology. 24 January 2014.

"Tipping points in nature and society". Moore College (Honors Program), University of Georgia. 30 January 2014

"Early warning signals of critical transitions in infectious disease dynamics". Georgia Regents University, Department of Biostatistics & Epidemiology. 1 November 2013.

"Early warning signals of critical transitions in infectious disease dynamics". University of Georgia, Department of Mathematics, Applied Mathematics Seminar series. 7 October 2013.

“Early warning signals of critical transitions in infectious disease dynamics”. Isaac Newton Institute for Mathematics workshop on Infectious Disease Dynamics, Cambridge, UK. 21 August 2013.

“Current problems in forecasting epidemiological transitions”. US Department of Health & Human Services Biomedical Advanced Research and Development Authority, Washington D.C. 2 May 2013.

“Spread of white-nose syndrome in a heterogeneous spatial network”. University of Liverpool. 6 November 2012.

“Early warning signals of extinction in a deteriorating environment.” University of Sheffield, 17 October 2012.

“Early warning signals of extinction in a deteriorating environment”. Natural Environment Research Council Centre for Ecology & Hydrology (Wallingford, UK). 19 September 2012.

“Spread of white-nose syndrome in a heterogeneous spatial network”. Microsoft Research, Cambridge, UK. 8 June 2012.

“Early warning systems for critical transitions in ecology and epidemiology”. Imperial College London Silwood Park Campus, 31 May 2012.

“Early warning signals of extinction in a deteriorating environment”. University of Helsinki (Metapopulation Research Group), 23 May 2012.

“Early warning systems for critical transitions in ecology and epidemiology”. Oxford University (Center for Mathematical Biology), 27 April 2012.

“Spread of white-nose syndrome in a heterogeneous spatial network”. University of Basel. 12 April 2012.

“Disease and the environment”. National Center for Ecological Analysis and Synthesis (Santa Barbara, California), 2012 NCEAS Symposium on Trends in Ecological Analysis & Synthesis. 22 March 2012. (Invited panelist)

“Spread of white-nose syndrome in a heterogeneous spatial network”. Oxford University (Department of Zoology). 9 March 2012.

“Spread of white-nose syndrome in a heterogeneous spatial network”. University of Cambridge. 5 March 2012.

“Cost-sensitive machine learning algorithms for invasive species decision support, risk analysis, and policy.” US Department of Agriculture, Economic Research Service Program on Economic Impacts of Invasive Species. 17 May 2011.

“Early warning signals of extinction in a deteriorating environment.” University of Guelph (Ontario, Canada). April 12, 2011.

“Computational methods for identifying structure in biological networks.” Washington University. February 15, 2011.

“Early warning signals of extinction in a deteriorating environment.” Washington University. February 14, 2011.

“Early warning signals of extinction in a deteriorating environment.” University of Nebraska-Lincoln. 20 January 2011.

“Mechanistic analogy: How microcosms tell us about nature.” University of South Carolina. 10 December 2010.

“Population dynamics of West Nile virus.” National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control, Atlanta, Georgia. 13 October 2010.

“Early warning signals of extinction in deteriorating environments.” Emory University. 17 September 2010.

“Reaction-diffusion model of biological invasion for species with an Allee effect: Application to ballast water discharge” 1st meeting of NRC Committee on Assessing Numeric Limits for Living Organisms in Ballast Water. 2 June 2010.

“Population dynamics of West Nile virus in New York City” University of Michigan, Center for the Study of Complex Systems. 19 April 2010.

“Cost-sensitive machine learning algorithms for invasive species decision support, risk analysis, and policy: genus level patterns.” US Department of Agriculture, Economic Research Service Program on Economic Impacts of Invasive Species. 22 October 2009.

“Decelerating traveling waves of West Nile virus in a heterogeneous, urban environment.” University of Georgia. 29 September 2009.

“Anomalous patterns of West Nile virus mortality in the US (1999-2007).” University of Georgia (EDGE). 18 September 2009.

“Decelerating traveling waves of West Nile virus in a heterogeneous, urban environment.” University of South Carolina. 12 September 2009.

“Demographic stochasticity and the Daphnia model.” Georgia Tech. 1 October 2008.

“Population dynamics of West Nile virus in New York City (1999-2007).” National Institutes of Health, Fogarty International Center. 11 August 2008.

“Global change and disease distributions: mapping uncertainty.” University of Georgia, 2007 BHSI Spring Symposium: Climate, Ecology and Infectious Disease. 16 April 2007.

“Infectious disease mediated by environmental change: An issue for environmental justice?” University of Georgia, River Basin Center. 9 February 2007.

“Do we need an ecological ethics?” Harvard Forest. 24 July 2006.

“Biological invasions in aquatic ecosystems: Local and global dynamics.” University of North Carolina, Chapel Hill. 13 February 2006.

“Forecasting population fluctuations in ecology and epidemiology: Stochastic phenomena & computational analysis.” Virginia Polytechnic Institute and State University. 9 February 2006.

“Understanding the drivers of population fluctuation and expansion: extinction, invasion, and disease outbreak on landscapes.” Georgia Tech. 27 January 2006.

“Mechanistic and computational approaches to forecasting population fluctuations in ecology and epidemiology.” University of Georgia, Institute of Ecology. 23 January 2006.

“Computational approaches to modeling disease-environment interactions: forecasting malaria dynamics in Africa with support vector machines.” Penn State, Center for Infectious Disease Dynamics. 12 November 2005.

“Local and global dynamics of biological invasions in aquatic ecosystems.” Washington University. 3 November 2005.

“Computational approaches to ecological forecasting: Disease outbreaks and species re-distribution.” Washington University. 4 November 2005.

“Modeling the potential distribution of zebra mussels in the United States: pattern recognition and one-class classification.” University of Tennessee, Knoxville, TN. February 4, 2005.

“Ethical considerations: why does it matter?” Lecture Series: Invasive Species and the Public Good, opening forum. Yale School of Forestry and Environmental Studies, New Haven, CT. January 24, 2005.

“Allee effects in invasive species: the discrepancy between models and data.” USDA Interagency Research Forum on Gypsy Moth and other Invasive Species, Annapolis,

MD. January 18-21, 2005.

“Extinctions in experimental populations.” National Center for Ecological Analysis and Synthesis, Santa Barbara, CA. October 28, 2004.

“Bythotrepes, ballast water and biological invasions: Population biology and risk analysis.” McGill University. February 11, 2004.

“How many animals does it take to start an invasion? Population biology for risk analysis of non-indigenous species.” Covenant College. March 28, 2003.

“The measurement of biological diversity, 1943-1982.” Southwest Colloquium in the History and Philosophy of the Life Sciences. Arizona State University. February 21-22, 2003.

“Viable Populations and the Risk of Biological Invasion: Tools for Managing Decisions.” Environmental Risk Assessment Conference, Cleveland State University Center for Environmental Science, Technology & Policy. April 26, 2002.

OTHER  
PUBLICATIONS

**Drake, J.M.**. 2015. A new epidemiology. *UGA Research* (In press.)

**Drake, J.M.**. 2015. Mapping infectious disease. Book review of *Mapping disease transmission risk: enriching models using biogeography and ecology*. *Ecology* (In press.)

Rivers, C., K. Alexander, S. Bellan, S. Del Valle, **J. M. Drake**, J. N.S. Eisenberg, S. Eubank, M. Ferrari, M. E. Halloran, A. Galvani, B. L. Lewis, J. Lewnard, E. Lofgren, C. Macal, M. Marathe, M. L. Ndeo Mbah, L. Ancel Meyers, R. Meza, A. Park, T. Porco, S. V. Scarpino, J. Shaman, A. Vespignani, W. Yang. 2014. Ebola: models do more than forecast (letter to the editor). *Nature* 515:492 <http://dx.doi.org/10.1038/515492a>

Halloran, M.E., A. Vespignani, N. Bharti, L.R. Feldstein, K.A. Alexander, M. Ferrari, J. Shaman, **J.M. Drake**, T. Porco, J.N.S. Eisenberg, S.Y. Del Valle, E. Lofgren, S.V. Scarpino, M.C. Eisenberg, D. Gao, J.M. Hyman, S. Eubank, I.M. Longini. 2014. Ebola: mobility data (letter to the editor). *Science* 346:433.

\*Bowden, S.E., & **J.M. Drake**. 2013. Ecology of host-pathogen systems with multiple species. *Nature Knowledge Project*. <http://www.nature.com/scitable/knowledge/library/ecology-of-multi-host-pathogens-of-animals-105288915>

**Drake, J.M.** 2013. *Food webs* (book review). *Quarterly Review of Biology* 88:132-133.

**Drake, J.M.** 2013. A niche for theory and another for practice. Book review of *Ecological Niches and Geographic Distributions* by A.T. Peterson et al. *Trends in Ecology & Evolution* 28:76-77.

\*Magori, K., & **J.M. Drake**. 2013. The population dynamics of vector-borne diseases. *Nature Education Knowledge* 4(4):14.

\*McKaughan, D.J., & **J.M. Drake**. 2012. Representing vague opinion. *Principia* 16(2):341-344.

**Drake, J.M.** 2012. *Philosophy of ecology* (book review). *Quarterly Review of Biology* 87(2):141-142.

**Drake, J.M.** 2012. *Ecology, cognition, and landscape: Linking natural and social systems* (book review). *Quarterly Review of Biology* 87(1):55-56.

Springborn, M., J.P. Schmidt & **J.M. Drake**. 2012. Cost-Sensitive Risk Assessment for Invasive Plants in the United States. *Proceedings of the California Invasive Plant Council Symposium*. 15:1. Cal-IPC, Berkeley, CA, 51-53.

\***Drake, J.M.**, & A.M. Kramer. 2011. Allee effects. *Nature Education Knowledge* 2(9):2. Available online: <http://www.nature.com/scitable/knowledge/library/allee-effects-19699394>

\*Indicates  
peer review

- Pardini, E.A., **J.M. Drake**, T. Knight. 2011. On the utility of population models for invasive plant management: response to Evans and Davis. *Ecological Applications* 21:614-618.
- Drake, J.M.** 2010. *Allee effects in ecology and conservation* by F. Couchamp, L Berec, and J. Gascoigne (book review). *Quarterly Review of Biology* 85:216.
- Drake, J.M.** 2009. Should Christians be realists? Context and conversation with Bradley John Montona review essay. *Christian Scholar's Review* XXXVIII(2):283-292.
- Drake, J.M.** D.M. Lodge, and C. Costello. 2008. Reply to Ricciardi & MacIsaac. *Ecological Applications* 18(5):1323-1324.
- Drake, J.M.** & D.M. Lodge. 2008. Reply to Reid & Hudson. *Canadian Journal of Fisheries and Aquatic Sciences* 65:554-555.
- Drake, J.M.** 2008. *Niche modeling: predictions from statistical distributions* by David Stockwell (book review). *Biometrics* 64:311-312.
- Drake, J.M.** 2008. Population ecology: population viability analysis. Pp. 2901-2907 in *Encyclopedia of Ecology*. Elsevier: Oxford. (Peer reviewed).
- Drake, J.M.** 2007. When nature attacks. Review of *Invasion ecology* (1st edn) by J.L. Lockwood, M.F. Hoopes, and M.P. Marchetti. *Times Higher Education Supplement* (May 2007).
- Drake, J.M.**, & D.M. Lodge. 2006. On the distribution and extension of rainbow smelt reply. *Fisheries* 31:304-305.
- Drake, J.M.** 2006. *Caring for creation* edited by S. Tillett (book review). *Science and Christian Belief* 18:204-205.
- Drake, J.M.** 2005. Ethical considerations. Invasive Species and the Public Good. *YFF Review* 8(1):19-21.
- Drake, J.M.** 2005. *Ecological orbits* by L. Ginzburg and M. Colyvan (book review). *American Midland Naturalist* 153:454-455.
- Drake, J.M.** 2005. Fundamental limits to the precision of early warning systems for epidemics of infectious diseases. *PLoS Medicine* 2: 461462. Published online 30 March 2005. Available online: <http://dx.doi.org/10.1371/journal.pmed.0020144>
- Drake, J.M.** 2005. *A primer of ecological statistics* by N.J. Gotelli and A.M. Ellison (book review). *Ecology* 86:810-811.
- Drake, J.M.**, C. Costello, & D.M. Lodge. 2005. When did the discovery rate for invasive species in the North American Great Lakes accelerate? *BioScience* 55(1):4.
- Drake, J.M.** 2005. Proceedings of the 24th Annual Midwest Ecology and Evolution Conference: Introduction. *American Midland Naturalist* 153:13.
- Drake, J.M.** 2005. Whence Explanation? The Diversity of Practices in Ecology: A Review of *Scientific method for ecological research* by E. David Ford (book review) *Biology and Philosophy* 19:801-807.
- Drake, J.M.** & R. Keller. 2004. Environmental justice alert: Do developing nations bear the burden of risk for invasive species? *BioScience* 54:718-719.
- Drake, J.M.** 2004. Population viability analysis: theoretical advances and research needs. *Endangered Species UPDATE* 21(3):93-96.
- Drake, J.M.** 2004. *Population Viability Analysis*, S.R. Beissinger and D.R. McCullough, eds., and *Quantitative Conservation Biology* by W.F. Morris, and D.F. Doak (book review). *Oryx* 38(3):351-352.
- Drake, J.M.** 2004. *Complex population dynamics: A theoretical/empirical synthesis* by Peter Turchin (book review) *Quarterly Review of Biology* 79(3):298.

- Drake, J.M.** 2004. *Stochastic population dynamics in ecology and conservation* by R. Lande, S. Engen, and B.E. Sæther (book review). *Acta Biotheoretica* 52:219-220.
- Drake, J.M.** 2004. *Foot and Mouth Disease: Facing the new dilemmas*, G.R. Thomson, ed. (book review) *Risk Analysis* 24(5):1412-1413.
- Drake, J.M.** & R.B. Bademan. 2003. *Disseminating Darwinism*, Numbers and Stenhouse, eds. (book review). *Science and Christian Belief* 15.
- Drake, J.M.** 2003. FEMLAB 2.3 (review of computer software for solving nonlinear partial differential equations). *Bulletin of the Ecological Society of America* 84:193-195.
- Drake, J.M.** 2003. The constructive use of metaphor in ecology. *Science* dEbate responses, published online 5 September 2003. Available online: <http://www.sciencemag.org/cgi/eletters/301/5629/52?ck=nck>
- Drake, J.M.** 2003. *Chaos in ecology: Experimental nonlinear dynamics* by J.M. Cushing, et al. (book review) *CHANCE* 16(4):48-49.
- Drake, J.M.** 2003. What has ecology to do with psychology? A review of *Ecological psychology in context* by Harry Heft. *Theory and Psychology* 13:573-576.
- Drake, J.M.** 2003. *Children and nature: Psychological, sociocultural and evolutionary investigations*, P.H. Kahn and S.R. Kellert, eds. (book review). *Research News & Opportunities in Science and Theology* 3(12):32.
- Drake, J.M.** 2003. *Narrative, religion and science* by Stephen Prickett (book review). *Reviews in Religion & Theology* 10:270-273.
- Drake, J.M.** 2003. *Science and religion in the English speaking world* by Richard Brooks and David Himrod (book review). *Perspectives on Science and Christian Faith* 55(1):56.
- Drake, J.M.** 2003. *The Darwin wars* by Andrew Brown (book review). *Science and Christian Belief* 15:65-66.
- Bademan, R.B., & **J.M. Drake**. 2003. *Reconciling science and religion: The debate in early-twentieth-century* by Peter Bowler (book review). *Reviews in Religion & Theology* 10:39-42.
- Drake, J.M.** 2002. *Elements of mathematical ecology* by M. Kot (book review). *Acta Biotheoretica* 50:205-207.
- Drake, J.M.** 2001. *The care of creation*, R.J. Berry, editor (book review). *Science and Christian Belief*. 13
- Drake, J.M.** 2001. *Doomsday: The science of catastrophic events* by Antony Milne (book review). *Perspectives on Science and Christian Faith* 53:61-62.
- Drake, J.M.** 2000. Two cultures and the two cultures: a book review of *Dependent rational animals* by Alasdair MacIntyre. *History and Philosophy of the Life Sciences* 22:299-304.
- Drake, J.M.** 2000. *Bright shadow of reality: Spiritual longing in C.S. Lewis* by Corbin Scott Carnell (book review). *Perspectives on Science and Christian Faith* 52(2):142.
- Drake, J.M.** 2000. *Thomas Henry Huxley: The evolution of a scientist* by Sherrie L. Lyons (book review). *Perspectives on Science and Christian Faith* 52(3):205-206. Reprinted in *Research News & Opportunities in Science and Theology* 1(8):17.
- Drake, J.M.** 2000. *Einstein and religion: Physics and theology* by Max Jammar (book review). *Perspectives on Science and Christian Faith* 52(3):205.



## GRANTS

- National Institutes of Health to **J.M. Drake**, B. Epureanu, M. Ferrari, A. Park, & P. Rohani (\$3,178,076), 2014-2019. Title: Forecasting tipping points in emerging and re-emerging infectious diseases.
- National Institutes of Health to B. Halloran et al. (Drake component: \$180,705), 2014-2019. Title: Center for Statistics and Quantitative Infectious Diseases.
- Highlands Biological Station to **J.M. Drake** (\$400) Title: Exploratory study of the inquiline community of *Sarracenia purpurea* in the vicinity of Highlands, NC.
- University of Georgia, President's Venture Fund to **J.M. Drake** (\$3,500) Title: Mobile games for public environmental education.
- National Science Foundation to **J.M. Drake** and M. Strand (\$283,500), 2012-2015. Title: REU Site: Population Biology of Infectious Diseases. DBI-1156707
- National Atmospheric and Oceanic Administration to D.M. Lodge, **J.M. Drake**, et al. (Drake component: \$345,057), 2010-2013. Title: Forecasting spread and bioeconomic impacts of aquatic invasive species from multiple pathways to improve management and policy.
- National Science Foundation to F. Dobbs, J. Ward, J. Niejako, R. Hicks, T. Holst and **J.M. Drake** (Drake component \$451,706), 2009-2013. Title: Collaborative Research - Microscopic islands: modeling the theory of island biogeography for aquatic pathogens colonizing marine aggregates. EF-0914347
- National Science Foundation to P. Rohani, D. Stallknecht, & **J.M. Drake** (\$489,202), 2009-2012. Title: Population ecology of avian influenza viruses. DEB-0917853
- James S. McDonnell Foundation to **J.M. Drake** & P. Rohani. (\$449,527), 2008-2013. Title: Evolutionary epidemiology of multi-transmission pathogens in multi-host networks.
- US Department of Agriculture to **J.M. Drake** (\$174,337), 2008-2010. Title: Cost-sensitive machine learning algorithms for invasive species decision support, risk analysis, and policy. Cooperative Agreement No. 58-7000-8-0111.
- National Science Foundation to **J.M. Drake** (\$578,619), 2007-2010. Title: Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). EF-0723601
- Great Lakes Protection Fund to D.M. Lodge, J. Feder, H.-C. Chang, M. Ozkan, **J.M. Drake**, and J.A. Andersen (\$1,090,000, Drake component \$195,341), 2006-2009. Title: Risk Assessment and Management of Great Lakes Invasive Species.
- Department of Natural Resources to J.P. Schmidt, **J.M. Drake** and R. Carroll. (\$23,831). Title: Economic analyses for ecosystem services and climate change adaptation.
- National Science Foundation to **J.M. Drake** (\$19,222). Title: Collaborative research – Microscopic Islands: Modeling the Theory of Island Biogeography for Aquatic Pathogens Colonizing Marine Aggregates. (“Research Opportunity Award” to support collaboration with students and faculty at Bethel College, Indiana, a primarily undergraduate institution)
- National Science Foundation to **J.M. Drake** (\$19,162), Spring 2012. Title: Collaborative research – Microscopic Islands: Modeling the Theory of Island Biogeography for Aquatic Pathogens Colonizing Marine Aggregates. (“Research Opportunity Award” to support collaboration with students and faculty at Bethel College, Indiana, a primarily undergraduate institution)
- National Science Foundation to **J.M. Drake** (\$32,357), Spring 2011. Title: Collaborative research – Microscopic Islands: Modeling the Theory of Island Biogeography for Aquatic Pathogens Colonizing Marine Aggregates. (“Research Opportunity Award” to

support collaboration with students and faculty at Bethel College, Indiana, a primarily undergraduate institution)

National Science Foundation to **J.M. Drake** (\$14,250), Spring 2010. Title: Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). (Supplement to provide research opportunities for undergraduates)

University of Georgia, President's Venture Fund to **J.M. Drake** (\$2,295) Title: Support for a visiting scientist, Elodie Vercken.

National Science Foundation to **J.M. Drake** (\$10,650), Spring 2009. Title: Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). (Supplement to provide research opportunities for undergraduates)

National Center for Ecological Analysis and Synthesis to **J.M. Drake** & W. Langford (\$16,900), June 2008. Title: Machine Learning for the Environment (Supplement)

University of Georgia, President's Venture Fund to **J.M. Drake** (\$1,500) Title: Support to provide research experience for teachers.

National Science Foundation to **J.M. Drake** (\$72,147), Summer 2008. Title: Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). (Supplement to perform a study of mosquito feeding preferences) EF-0824507

National Science Foundation to **J.M. Drake** (\$7,000), Spring 2008. Title: Emerging urban vector-borne disease: West Nile Virus in New York City (1999-2006). (Supplement to provide research opportunities for undergraduates)

University of Georgia Research Foundation, Inc. to **J.M. Drake** (\$7,010), 2008-2009. Title: Extinction in deteriorating environments.

University of Georgia Research Foundation, Inc. to **J.M. Drake** (\$7,000), 2007. Title: *Daphnia* longevity in fluctuating environments.

National Center for Ecological Analysis and Synthesis to **J.M. Drake** & W. Langford (\$97,850), 2006-2008. Title: Machine Learning for the Environment.

US Department of Agriculture to T. Knight, J. Chase, K. McCue, & **J.M. Drake** (\$190,069, Drake component \$0), 2005-2006. Title: Population dynamics of density dependent garlic mustard populations.

NSF Doctoral Dissertation Improvement Grant to **J.M. Drake** (\$11,986), Summer 2003 (DEB-0308934). Title: Invasion Risk in the Great Lakes: Estimating Propagule Pressure with Molecular Tools.

JumpStart Grant (University of Notre Dame) to **J.M. Drake** and Jennifer L. Tank (\$1000), Spring 2001 for integrating technology and classroom instruction: General Ecology.

Illinois-Indiana Sea Grant College Program Graduate Fellowship to **J.M. Drake** (\$6000), 2001-2002. Title: How many animals does it take to cause an invasion? Predicting future invaders and deriving standards for ballast water from theoretical models of Allee effects.

EPA Graduate STAR Research Fellowship to **J.M. Drake** (\$102,000), 2001-2004. Title: Predicting the identity and probability of establishment for potential aquatic invaders of the North American Great Lakes: a risk assessment.

GRANT APPLICATIONS PENDING	<p>National Science Foundation to B. Han &amp; <b>J.M. Drake</b> (Drake component: \$1,405,985), 2015-2020. Title: Global ecological drivers of zoonotic disease: Prediction, patterns &amp; mechanisms.</p> <p>National Science Foundation to <b>J.M. Drake</b> (\$151,704), 2015-2016. Title: RAPID: Robust allocation of public health interventions to contain Ebola in West Africa: a machine learning approach.</p> <p>National Science Foundation to A.W. Park, J. Corn, <b>J.M. Drake</b>, D.G. Mead, &amp; D. Stallknecht. (\$1,671,426), 2015-2019. Title: Novel mechanisms for the invasion and persistence of vector-borne diseases: the case of hemorrhagic disease.</p>
FELLOWSHIPS & AWARDS	<p>University of Georgia Creative Research Medal (2014); Keeley Visiting Fellowship, Wadham College, Oxford University (2012); University of Georgia, Sarah H. Moss Fellowship (2012); Leverhulme Foundation Visiting Professorship, Oxford University (2012); University of Georgia Excellence in Undergraduate Research Mentoring Faculty Award (2011); National Center for Ecological Analysis and Synthesis, Postdoctoral Fellowship (Summer 2004-Summer 2006); University of Notre Dame, Department of Biological Sciences 2004 Research Achievement Award (2004); Silicon Graphics Inc. (SGI), University of Notre Dame, College of Science Award for Computational Science and Visualization (2004); NSF Graduate Research Fellowship Honorable Mention (2000); Schmitt Research Fellowship (University of Notre Dame; 1999-2003); Phi Theta Kappa (International honor society; 1996); E. Gordon Riley Scholarship (1996); Buffalo Foundation Scholarship (1997); Covenant College Instrumental Music Scholarship (1996-1998); Maryland Saltwater Sportfishermans Association Scholarship (1996-1998); AuSable Institute Fellow (1998); Covenant College Presidential Scholarship (1996-1999); Covenant College McDonald Scholarship (1997-1999); Dean's List (Anne Arundel Community College, 1994-1996; Covenant College, 1996-1999); Eagle Scout Award (1993)</p>
THESES DIRECTED	<p>Reni Kaul (PhD, expected 2018)</p> <p>Tad Dallas (PhD, expected 2016)</p> <p>Sarah Bowden (PhD, expected 2015)</p> <p>Marcus Zokan (PhD, expected 2015)</p>
THESIS COMMITTEES	<p>Molly Fisher (PhD, University of Georgia, Ecology; Thesis advisor: J. Gittleman)</p> <p>John Vinson (PhD, University of Georgia, Ecology; Thesis advisor: A. Park)</p> <p>Chao Song (PhD, University of Georgia, Ecology; Thesis advisor: F. Ballantyne)</p> <p>Elise Krueger (PhD, University of Georgia, Ecology; Thesis advisor: F. Ballantyne)</p> <p>Kimmy Kellett (PhD, University of Georgia, Ecology; Thesis advisor: R. Shefferson)</p> <p>Thomas Barnum (PhD, University of Georgia, Ecology; Thesis advisor: C. Pringle, 2014)</p> <p>Krishna Pacifici (MA, University of Georgia, Statistics; Thesis advisor: N. Lazar, 2012)</p> <p>Shan Huang (PhD, University of Georgia, Ecology; Thesis advisors: J. Gittleman and S. Altizer, 2012)</p> <p>John Robinson (PhD, University of Georgia, Genetics; Thesis advisor: J. Wares, 2011)</p> <p>Krishna Pacifici (PhD, University of Georgia, Forestry and Natural Resources; Thesis advisor: M. Conroy, 2011)</p> <p>Ken Leonard (PhD, University of Georgia, Ecology; Thesis advisor: M. Bradford, 2010)</p>

Catherine Bradley (PhD, University of Georgia, Ecology; Thesis advisor: S. Altizer; 2009)

PROFESSIONAL  
ACTIVITIES &  
COMMUNITY  
SERVICE

UGA President's Faculty Advisory Committee (August 2014 – present)  
Odum School of Ecology Promotion & Tenure Committee (August 2014 – present)  
Participant in the *Advancing Theory and Research on Scientific Synthesis* working group (September 2013 – present)  
Participant in the *Macroecology of Infectious Diseases Research Coordination Network* (October 2013 – present)  
UGA Research Computing Advisory Committee (August 2011 – December 2011)  
UGA Academic Honesty Panel (March 2011 – present)  
Co-organizer of Organized Oral Symposium (with B. Han), Ecological Applications of Machine Learning, Ecological Society of America 2011 Annual Conference, Austin, Texas, August 7-12, 2011  
UGA Faculty Learning Community on the Scholarship of Teaching and Learning (Fall 2010 – Spring 2011)  
Faculty sponsor of University of Georgia chapter of the National Students of AMF, a network dedicated to supporting college students grieving the illness or death of a loved one. (April 2008-November 2011)  
Co-organizer of Symposium (with S. Altizer), Pathogens in Heterogeneous Landscapes: Consequences of Environmental Variation for Infectious Disease Dynamics and Control, International Association for Landscape Ecology 2010 Annual Conference, Athens, Georgia, April 8, 2010  
UGA Biology Curriculum Committee (2010-2011)  
NSF Population and Community Ecology Panel, member (April 13-17, 2010)  
UGA Honors Faculty Mentoring Network (2009-2011)  
Scientific Advisory Board, Highlands Biological Station (2008 – present)  
Advisory Board of the University of Georgia River Basin Center, member (2007 – present)  
Steering Committee of the Institute of Ecology's Conservation Ecology and Sustainable Development (CESD) Masters Program (2007-2008)  
Odum School of Ecology Executive Committee (2007 – 2014)  
Odum School of Ecology Undergraduate Curriculum Committee (2006 – 2009)  
Co-director (with Bill Langford) of the *Ecological Applications of Machine Learning* working group at the National Center for Ecological Analysis and Synthesis, 2006-2009.  
Co-organizer of session about population dynamics of invasive plants, ESA 2005 annual conference, Montreal, Canada  
Co-chair, 24th annual Midwest Ecology and Evolution Conference, U. Notre Dame, March 57, 2004  
Volunteer, Hope Rescue Mission, South Bend, IN  
Boy Scout Environmental Science merit badge counselor (2000 – 2004)  
Advisory board for Notre Dame Kaneb Center for Teaching and Learning (2001 – 2002)  
Society for Conservation Biology, Committee on Education (2000 – 2002)  
Volunteer educator, Sunshine Cove Youth Camp (2000 – 2002)  
Volunteer science fair judge (March 2000)

## TEACHING

*Senior Seminar (ECOL 4950)*

Fall 2006, Spring 2013

*Population & Evolutionary Ecology (ECOL 8310)*

Fall 2007, Fall 2008, Fall 2009, Fall 2011, Fall 2013

*Introduction to Applied Statistics (ECOL 8990)*

Fall 2007

*Population & Community Ecology (ECOL 4000/6000)*

Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Fall 2014

*Data Visualization (ECOL 8990)*

Fall 2008

*Meta-analysis (ECOL 8910)*

Spring 2010

*Time Series Analysis (ECOL 8910)*

Fall 2010

*Nonlinear Time Series Analysis (ECOL 8910)*

Spring 2011

*Quantifying Biodiversity (ECOL 8910)*

Spring 2014

*First Year Odyssey Seminar: Introduction to Mathematical Biology (FYOS 1001)*

Fall 2011

*First Year Odyssey Seminar: The Structure of Scientific Revolutions (FYOS 1001)*

Fall 2013

*Cross-Disciplinary Ecology (ECOL 8030)*

Fall 2014

*Introduction to Computational Statistics (ECOL 8910)*

Spring 2015

## WORKSHOPS

*6<sup>th</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington July 7-9, 2014 (Instructor for module “Mathematical models of infectious diseases”)

*5<sup>th</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington July 8-10, 2013 (Instructor for module “Mathematical models of infectious diseases”)

*Early-warning signals for critical transitions: bridging the gap between theory and practice*, Royal Netherlands Academy of Arts and Sciences (Amsterdam, The Netherlands), October 12, 2012 (Instructor)

*4<sup>th</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington July 11-13, 2012 (Instructor for module “Mathematical models of infectious diseases”)

*Mathematical Modeling of Infectious Diseases*, Centers for Disease Control & Prevention, Atlanta, Georgia, November 14-18, 2011 (Instructor)

*Ecology and Evolution of Infectious Disease 9th Annual Workshop and Conference*, University of California Santa Barbara, Santa Barbara, California, June 22-25, 2011 (Instructor for ecology workshop)

*3<sup>rd</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington June 15-17, 2011 (Instructor for module “Mathematical models of infectious diseases”)

*Ecology and Evolution of Infectious Disease 8th Annual Workshop and Conference*, Cornell University, Ithaca, New York, June 6-9, 2010 (Instructor for ecology workshop)

*2<sup>nd</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington June 13-15, 2010 (Instructor for module “Mathematical models of infectious diseases”)

*Ecology and Evolution of Infectious Disease 7th Annual Workshop and Conference*, University of Georgia, Athens Georgia, May 17-22, 2009 (Instructor for ecology workshop)

*1<sup>st</sup> Summer Institute in Statistics and Modeling of Infectious Diseases*, University of Washington, Seattle, Washington June 15-17, 2009 (Instructor for module “Mathematical models of infectious diseases”)

*Environmental Risk Assessment*, Cleveland State University, Center for Environmental Science, Technology and Policy, April 26, 2002 (Instructor for workshop “Using environmental risk analysis to assess and control non-indigenous species invasions”)

#### CONSULTING

University of Miami, Environmental Changes and Mosquito-borne Disease in Arid Environments (2010-2015)

Lytmos Group, Inc. 400 SW Longview Blvd., Suite 290, Lee’s Summit, MO 64081 (2009)

Eastern Research Group, Inc. 110 Hartwell Avenue, Lexington, MA 02421-3131 (2008)

World Health Organization (2008)

#### REVIEWING

*Acta Tropica*, *American Midland Naturalist*; *American Naturalist*; *Biological Dynamics*; *Biological Invasions*; *Biology Letters*; *BMC Evolutionary Biology*; *Bulletin of Mathematical Biology*, *Canadian Aquatic Invasive Species Network*; *Canadian Journal of Fisheries & Aquatic Sciences*; *Canadian Journal of Forest Research*; *Christian Scholar’s Review*; City University of New York; *Conservation Biology*; *Conservation Letters*; *Coral Reefs*; *Diversity*; *Diversity & Distributions*; *Ecohealth*; *Ecosphere*; *Ecography*; *Ecological Applications*; *Ecological Economics*; *Ecological Entomology*; *Ecological Informatics*; *Ecological Modelling*; *Ecological Monographs*; *Ecology*; *Ecology & Society*; *Ecology Letters*; *Ecosystems*; Elsevier/Academic Press; *Environmental & Ecological Statistics*; *Environmental Science & Technology*; *Evolution*; French National Research Agency; *Frontiers in Ecology & Environment*; *Global Ecology & Biogeography*; *International Journal of Infectious Disease*; *Journal of Animal Ecology*; *Journal of Applied Ecology*; *Journal of Theoretical Biology*, *Journal of the Royal Society Interface*; Leverhulme Trust; *Marine Ecology Progress Series*; *Methods in Ecology & Evolution*; Missouri Life Sciences Research Board; National Aeronautic and Space Administration, Global Climate Change Education Research Program; National Aeronautic and Space Administration, K12 Cooperative Agreements Program; National Environment Research Council (UK); National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory; National Science Foundation (USA); *Nature*; *Nature Communications*; Netherlands Space Office; *Oecologia*; *Oikos*; Oxford University Press; *Philosophical Transactions of the Royal Society*; *PLOS Biology*; *PLOS Computational Biology*; *PLOS Currents*; *PLOS Medicine*; *PLOS ONE*; *Population Ecology*; *Proceedings of the National Academy of Sciences*; *Proceedings of the Royal Society Series B*; *Restoration Ecology*; Royal Society of New Zealand; *Science*; Springer Academic Publishing; *Theoretical Ecology*; *Theoretical Population Biology*; *Transactions of the American Fisheries Society*; *Trends in Ecology & Evolution*; *Weed Research*



NEWS COVERAGE,  
PUBLISHED  
CORRESPONDENCE,  
& DERIVATIVE  
WORKS

Clemmitt, M. Emerging infectious diseasesl. *CQ Quarterly*, Volume 25, Issue 7; February 13, 2015.

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PUBLIC ACTIVITIES  
& OUTREACH

- Panelist, "A Conversation about Ebola" public discussion at the UGA Health Sciences Campus (25 September 2014)
- Interview for the Public Radio Exchange program "Open Access: Generation Open" (16 December 2014) <https://beta.prx.org/stories/138032>
- APHIS-2006-0011 Importation of Plant for Planting; Establishing a Category of Plant for Planting Not Authorized for Importation Pending Pest Risk Analysis, Public Comment (with R. Keller, D. Finnoff, & D. Lodge), October 2009.
- Letter of support to Paul Stolen and Minnesota Department of Natural Resources regarding Risk and Consequence Analysis Focused on Biota Transfers Potentially Associated with Surface Water Diversions Between the Missouri River and Red River Basins by Greg Linder et al., 21 March 2006
- APHIS-2005-0020 Proposed rules 7 CFR Part 319 Nursery Stock Regulations, Public Comment (with R. Keller, J. Bossenbroek, & D. Lodge), April 2004
- Increase Your Leadership on Global Warming, open letter to California Governor Schwarzenegger and California legislators from California scientists, signatory, March 2005
- USDA040371 Noxious Weeds; Notice of Availability of Petitions To Regulate Caulerpa, Public Comment (with J. Bossenbroek & R. Keller), December 2004
- Scientists Statement: Restoring Scientific Integrity in Policy Making, signatory, September 2004
- USCG200110486 Standards for Living Organisms in Ship's Ballast Water Discharged in U.S. Waters, Public Comment (with D. Lodge), December 2003

Scientists Call to Action on Invasive Species: Gifts To The Nation, signatory, November 2003

Not in Our Name Statement of Conscience, signatory, November 2002

UPDATED: FEBRUARY 26, 2015