

# Brian J. McGill

University of Maine  
School of Biology & Ecology  
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US Citizen

## **Positions**

- 2015-present Professor, School of Biology and Ecology  
dual appointment in the Mitchell Center for Sustainability Solutions;  
cooperating appointment with Climate Change Institute.
- 2012-2015 Associate Professor, University of Maine
- 2010-2012 Assistant Professor, University of Maine
- 2008-2010 Associate Professor, School of Natural Resources, Univ of Arizona  
joint Department of Ecology and Evolutionary Biology  
affiliate member of Statistics GIDP  
member of Global Change GIDP  
member of Institute of the Environment
- 2008-2011 Adjunct Professor, Department of Biology, McGill University
- 2005-2008 Assistant Professor, Department of Biology, McGill University  
member McGill Center for Bioinformatics  
member McGill NEO (Neotropical Environment Option)  
associate member McGill School of the Environment  
member Quebec Center for Study of Forests

## **Education and training**

- 2003-2005 NSF Interdisciplinary Informatics Postdoctoral Fellowship  
Michigan State University, Brian Maurer host
- 1997-2003 University of Arizona - PhD in Ecology and Evolutionary Biology; Major  
advisor: Mike Rosenzweig; Committee: Brian Enquist, Larry Venable,  
Wayne Madison, Leticia Aviles, Jim Cushing (Math department)
- 1984-1988 Harvard University – BA in Mathematics, Cum Laude general studies

## **Awards and Distinctions**

Fellow of the Ecological Society of America (about 250 Fellows out of 9000 members).  
Citation: “Elected for important contributions to the fields of macroecology,  
population and community ecology, spatial ecology, and global change, and for  
exceptional service to the discipline via editorial work and the Dynamic Ecology  
blog.”

2019 ISI Web of Science *Highly Cited Researcher* (top 0.1% highly cited in my field  
2008-2018, only 169 named in discipline Environment/Ecology globally)

Eleven papers rated “Must read” in Faculty of 1000

As many as eight papers rated “ISI highly cited” by Web of Science (top 1% citation rate  
in ecology) (7 currently)

My research has been described in high school, undergraduate and graduate textbooks  
2018 Fulbright Scholar - France Spring (Declined)  
2017 Distinguished Ecologist Lecturer (early career) – Colorado State  
2016 John Muir Lecture, University of Edinburgh  
2015 Distinguished Scholar Lecturer in SESYNC (Socio-Environmental Synthesis Center) postdoctoral immersion program  
2017 Nominee for best graduate mentor - College of Natural Sciences Forestry & Agriculture  
2010 Student-nominated for UA College “A+ Advisor” award  
2003 Both college & university-wide teaching awards as a Teaching Assistant  
2003-2005 NSF Postdoctoral fellowship in bioinformatics  
1998-2002 NSF Graduate fellowship  
1997-2000 Flinn Biomathematics fellowship  
Invited speaker or keynote speaker 65 times  
Co-inventor Patent #6115714 (Triggering mechanism for multi-dimensional databases)

### **Books**

Magurran, Anne and Brian J. McGill co-editors of “Biological diversity: frontiers in measurement and assessment” (Oxford University Press, Release date Nov 18, 2010)  
Mittelbach, Gary and Brian J. McGill – co-authors of “Community Ecology 2<sup>nd</sup> Edition” (Oxford University Press, released August 2019)  
McGill, Brian J – “Large-Scale Ecology: the Science of Global Change Impacts on Biodiversity” – under contract with Oxford University Press, currently due for release summer 2021 (first draft 2/3 complete).

### **Papers**

#### **Published/In Press/Accepted**

#### **2003**

1. **McGill, Brian J** - "A test of the unified neutral theory of biodiversity" (*Nature* 2003 vol 422(24 April): 881-885)
2. **McGill, Brian J** and Cathy D. Collins - "A unified theory for macroecology based on spatial patterns of abundance" (*Evolutionary Ecology Research* 5(4):469-492)
3. **McGill, Brian J** – “Does Mother Nature really prefer rare species or are log-left-skewed SADs a sampling artifact?” (*Ecology Letters* 2003 6:766-773)
4. **McGill, Brian J** - "Strong and weak tests of macroecological theory" (*Oikos* 2003 vol 102(3):679-685)

#### **2004**

5. Maurer, Brian A and **Brian J. McGill** – “Non-neutral macroecology” (*Basic and Applied Ecology* 2004 5:413-422)

#### **2005**

6. **McGill, Brian J** - "A mechanistic model of a mutualism and its ecological and evolutionary dynamics " (*Ecological Modeling* 2005 187:413-425)

7. **McGill, Brian J**; Hadly, Elizabeth A; Maurer, Brian A “Community inertia of Quaternary small mammal assemblages in North America” (*Proceedings of the National Academy of Science* 2005 102:16701-16706)

## 2006

8. **McGill, Brian J**; Brian Enquist, Evan Weiher and Mark Westoby – “Rebuilding community ecology from functional traits” (*Trends in Ecology and Evolution* 2006 21(4):178-185)
9. **McGill, Brian J** and Gary Mittelbach – “Allometric scaling of optimal foraging” (*Evolutionary Ecology Research* 2006 8:691-701)
10. **McGill, Brian J**; Brian A. Maurer, Michael D. Weiser – “Empirical evaluation of the neutral theory” (*Ecology* 2006 87(6):1411-1423)
11. Gotelli, Nicholas J. and **Brian J. McGill** – “Null versus neutral models: what's the difference?” (*Ecography* 2006 29(5):793-800)
12. **McGill, Brian J**; Brian Enquist; Evan Weiher and Mark Westoby – “Response to Kearney and Porter: Both functional and community ecologists need to do more for each other” (*Trends in Ecology and Evolution* 2006 21(9):482-483)
13. **McGill, Brian J** – “A Renaissance in the study of abundance” (*Science* 2006 314:770-771)

## 2007

14. Ugland, Karl I; P. John D. Lamshead; **Brian McGill**; John S. Gray; Niall O’Dea; Richard J. Ladle; Robert J. Whittaker – “Modelling dimensionality in species abundance distributions: description and evaluation of the Gambin model” (*Evolutionary Ecology Research* 2007 9:313-324)
15. Bahn, Volker<sup>7</sup> and **Brian J. McGill** – “Can niche-based distribution models outperform spatial interpolation” (*Global Ecology and Biogeography* 2007 16:733-742)
16. McGill, Brian J; Rampal S. Etienne; John S. Gray and 15 other authors - "Species Abundance Distributions: moving beyond single prediction theories to integration within an ecological framework" (*Ecology Letters* 2007) 10:995-1015
17. **McGill, Brian J** and Joel S. Brown - "Evolutionary Game Theory and Adaptive Dynamics of Continuous Traits" (*Annual Review of Ecology, Evolution and Systematics* 2007 20:403-435)

## 2008

18. **McGill, Brian J** – “Exploring predictions of abundance from body mass using hierarchical comparative approaches” (*American Naturalist* 2008 172:88-101)

## 2009

19. Jarema, Stacey I; Jason Samson; **Brian J. McGill** and Murray M. Humphries – “Variation in abundance across a species’ range predicts climate change responses in the range interior will exceed those at the edge: a case study with North American beaver.” (*Global Change Biology* 2009 15(2):508-522)
20. Gordon, Caleb; **Brian J. McGill**; Guillermo Ibarra-Nuñez; Russell Greenberg and Ivette Perfecto – “Simplification of a coffee foliage-dwelling beetle community under low shade management” (*Basic and Applied Ecology* 2009 10(3):246-254)

21. Morlon, H, White EP, Etienne R, Green JL, Ostling A, Alonso D, Enquist BJ, He F, Hurlbert AH, Magurran AE, Maurer BA, **McGill BJ**, Olff H, Storch D, Zillio T – “Taking species abundance distributions beyond individuals” (*Ecology Letters* 2009 12(6):488-501

## 2010

22. **McGill, Brian J.** – “Towards a unification of unified theories of biodiversity” (*Ecology Letters* 2010) 13(5):627-642  
5<sup>th</sup> most read/downloaded paper for Ecology Letters in 2010
23. **McGill, Brian J.** and Jeff Nekola – “Mechanisms in macroecology: AWOL or purloined letter? Towards a pragmatic view of mechanism” (*Oikos* 2010) 119(4):591-603
24. Messier, Julie<sup>β</sup>; **Brian J. McGill** and Martin Lechowicz – “How do leaf traits vary across ecological scales?” (*Ecology Letters* 2010) 13:838-848)
- Magurran, Anne and **Brian J. McGill** co-editors of “Biological diversity: frontiers in measurement and assessment” (Release date Nov 18, 2010, catalog listing: <http://ukcatalogue.oup.com/product/9780199580675.do>) (also listed under books)
25. Magurran, Anne and **Brian J. McGill** “Challenges and opportunities in measuring biodiversity” (introduction to book)
26. Maurer, Brian A; **McGill Brian J.** - "Measurement of Diversity" (Book chapter)
27. **McGill, Brian J.** “Species abundance distributions” (Book chapter)
28. **McGill, Brian J.** “Spatial statistics of biodiversity” (Book chapter)
29. **McGill, Brian J.** and Anne Magurran “The future of measuring biodiversity” (conclusion to book)”
30. **McGill, Brian J** – “Matters of Scale” (*Science* 2010) 328(30 Apr):575-576
31. Berteaux, D.; Blois, S.; Angers, J.-F.; Bonin, J.; Casajus, N.; Darveau, M.; Fournier, F.; Humphries, M.M.; **McGill, B.**; Larivée, J.; Logan, T.; Nantel, P.; Périé, C.; Poisson, F.; Rodrigue, D.; Rouleau, S.; Siron, R.; Thuiller, W.; Vescovi, L. “The CC-Bio Project: Studying the Effects of Climate Change on Quebec Biodiversity.” (*Diversity* 2010) 2:1181-1204.

## 2011

32. **McGill, Brian J.** – “Linking biodiversity patterns by autocorrelated random sampling” (*American Journal of Botany* 2011 98(3): 481–502)
33. Samson, J<sup>β</sup>; Berteaux, D; **McGill, Brian J.** and Humphries, M – “Geographic disparities and moral hazards in the predicted impacts of climate change on human populations” (*Global Ecology and Biogeography* 2011) 20(4):532-544
34. White, Peter J. T.<sup>β</sup>, **McGill, Brian J.** and Lechowicz Martin J. – “Human-disturbance and caterpillars in managed forest fragments” (*Biodiversity and Conservation* 2011) 20(8):1745-1762
35. Michelson, Greg, **McGill, Brian J.**, Beaulieu, Sebastien<sup>α</sup> and Beukema, Patrick L.<sup>α</sup> – “Multiple links between species diversity and temporal stability of bird communities across North America” (*Evolutionary Ecology Research* 13(4):361-372)

## 2012

36. Potochnik, Angela; **McGill, Brian J.** - "The Limitations of Hierarchical Organization" (*Philosophy of Science* 79(1):120-140)
37. Peter White<sup>β</sup>; **McGill, Brian J.**; Lechowicz, Martin J – "Detecting changes in forest floor habitat after canopy disturbance" (*Ecological Research* 27(1):1-10)
38. **McGill, Brian J.** – "Trees are rarely most abundant where they grow best" (*Journal of Plant Ecology* 5(1):46-51)
39. Sergio Estrada-Villegas<sup>β</sup>, **McGill, Brian J.**; Kalko, Elisabeth K. V. - "Climate, habitat and species interactions at different scales determine the structure of a neotropical bat community" (*Ecology* 93(5):1183-1193)
40. Elizabeth M. Wolkovich, B. I. Cook, J. M. Allen, T. M. Crimmins, J. L. Betancourt, S. Travers, S. Pau, J. Regetz, T. J. Davies, N. J. B. Kraft, T. R. Ault, K. Bolmgren, S. J. Mazer, G. J. McCabe, **B. J. McGill**, C. Parmesan, N. Salamin, M. D. Schwartz & E. E. Cleland – "Warming experiments underpredict plant phenological responses to climate change" (*Nature* 2012 485(24 May):494-497)
41. Sergio Estrada-Villegas<sup>β</sup>, **McGill, Brian J.**; Kalko, Elisabeth K. V. - "Determinants of species evenness in a neotropical bat ensemble" (*Oikos* 121(6):927-941)
42. Nicholas Isaac; Carbone, Chris and **McGill, Brian J** – "Chapter 8 - Population and Community Ecology" chapter in "Metabolic Ecology: a Scaling Approach" edited by Richard Sibley, James Brown and Astrid-Kodric Brown (Wiley-Blackwell 2012)
43. Cyrille Violle, Brian J. Enquist, **Brian J. McGill**, Lin Jiang, Cécile H. Albert, Catherine Hulshof, Vincent Jung, Julie Messier<sup>β</sup> - "The return of the variance: intraspecific variability in community ecology" (*Trends in Ecology and Evolution* 27(4):244-252)
44. Cyrille Violle, Brian J. Enquist, **Brian J. McGill** – "Viva la variance: a reply to Nakagawa and Schielzeth" (*Trends in Ecology and Evolution* 27(9):475-476)
45. Samson, J<sup>β</sup>; Berteaux, D; **McGill, Brian J.** and Humphries, M – "Demographic Amplification of Climate Change Experienced by the Contiguous United States Population during the 20th Century" (*PLOS One* 7(10):e45683, doi:10.1371/journal.pone.0045683, 8 pages)
46. Cook, Benjamin J, Elizabeth M Wolkovich, T Jonathan Davies, Toby R Ault, Julio L Betancourt, Jenica M Allen, Kjell Bolmgren, Elsa E Cleland, Theresa M Crimmins, Nathan J B Kraft, Lesley T Lancaster, Susan J Mazer, **Brian J McGill**, Gregory J McCabe, Camille Parmesan Stephanie Pau, James Regetz, Nicolas Salamin, Mark D Schwartz, Steven E Travers - "Sensitivity of spring phenology to warming across temporal and spatial climate gradients in two independent databases" (*Ecosystems* 2012 15(8):1283-1294)

## 2013

47. Maurer, Brian A., Steven Kembel, Andrew Rominger, **Brian J. McGill**– "Estimating metacommunity extent using data on species abundances, environmental variation, and phylogenetic relationships across geographic space" (*Ecological Informatics* 13:114-122)
48. Dornelas, M., Magurran, A., Buckland, S., Chazdon, R., Chao, A., Colwell, R., Curtis, T., Gotelli, N., Kosnik, M., **McGill, B.**, Morlon, H., Mumby, P., Øvreås, L., Stuedeny, A. and Vellend, M. Quantifying temporal change in biodiversity:

- challenges and opportunities (Proceedings of the Royal Society B 2013 280(1750):20121931 (no page #s))
49. **McGill, Brian J** – “Species assemblages, macroecology and global change” (Encyclopedia of Biodiversity 2<sup>nd</sup> Edition, Edited by Simon Levin, Elsevier, May 2013)
  50. **McGill, Brian J** – “A macroecological approach to the equilibrational vs. nonequilibrium debate using bird populations and communities” in “Nonequilibrium ecology and human impact” edited by Klaus Rohde, Cambridge University Press
  51. Bahn, Volker<sup>γ</sup> and **Brian J. McGill** – “Testing the predictive performance of distribution models” (*Oikos* 2013 122(3):321-331)
  52. Hulshof, Catherine M<sup>β</sup>; Cyrille Violle, Marko J Spasojevic, **Brian McGill**, Ellen Damschen, Susan Harrison, Brian J Enquist - “Intra-specific and inter-specific variation in specific leaf area reveal the importance of abiotic and biotic drivers of species diversity across elevation and latitude” (*Journal of Vegetation Science* 2013 24:921-931)
  53. Feldman, Richard<sup>β</sup> and **Brian J. McGill** – “How important is nectar in shaping spatial variation in the abundance of temperate breeding hummingbirds?” (*Journal of Biogeography* 2013 41(3):489-500)
  54. Feldman, Richard<sup>β</sup> and **Brian J. McGill** – “How competitive trade-offs limit elevation ranges for temperate breeding hummingbirds” (*Canadian Journal of Zoology* 2013 91(10):717-725)
  55. Morueta-Holmes, Naia; Enquist, Brian J; **McGill, Brian J** followed by 15 other members of BIEN working group and Jens-Christian Svenning – “Habitat area and climate stability determine geographic variation in plant species range sizes” (*Ecology Letters* 2013 16(12):1446-1454)

## 2014

56. Nekola, Jeffrey C; **McGill Brian J** –“ Scale dependency in the functional form of the distance decay relationship” (*Ecography* 2014 37:309-320)
57. Dornelas, Maria; Nicholas J. Gotelli; **Brian. McGill**; Hideyasu Shimadzu; Faye Moyes; Caya Sievers; Anne E. Magurran – “Assemblage Time Series Reveal Biodiversity Change but Not Systematic Loss” (*Science* 2014 344(18 Apr):296-299)
58. Dalby, Lars<sup>β</sup>; **Brian J. McGill**; Fox, Anthony David; Svenning, ; Jens-Christian - “Seasonality drives global-scale diversity patterns in waterfowl (Anseriformes) via temporal niche exploitation” (*Global Ecology and Biogeography* 2014 231(5):550-562)
59. Dornelas, Maria, Nicholas J Gotelli, **Brian McGill**, Anne E. Magurran – “Overlooked local biodiversity loss – Response” (*Science* 2014 344(6 June) 1098-1099)
60. Colgan, Charles; Malcolm Hunter, **Brian McGill**, Aaron Weiskittel, “Managing the middle ground: Forests in the transition zone between cities and remote areas” (*Landscape Ecology* 2014 29:1133–1143)
61. Lazarus, Elijah<sup>γ</sup>; **Brian McGill** – “Pushing the pace of tree species migration” – (PLOS One 2014 9(8): e105380. doi:10.1371/journal.pone.0105380)
62. Parmentier, Benoit<sup>γ</sup>; **Brian McGill**, Adam M. Wilson, James Regetz, Walter Jetz, Robert Guralnick, Mao-Ning Tuanmu, Natalie Robinson, Mark Schildhauer – “An

- assessment of methods and remotely sensed covariates for regional predictions of 1 km daily maximum air temperature” (*Remote Sensing* 2014 6(9), 8639-8670)
63. Lammana, Christine<sup>γ</sup>, Benjamin Blonder; Cyrille Violle; Nathan J. B. Kraft; Brody Sandel; Irena Simova; John C. Donoghue<sup>β</sup>; Jens-Christian Svenning; **Brian McGill**; Brad Boyle; Vanessa Buzzard; Steven Dolins; Peter M. Jørgensen; Aaron Marcuse-Kubitzka; Naia Morueta-Holme; Robert K. Peet; William H. Piel; James Regetz; Mark Schildhauer; Nick Spencer; Barbara Thiers; Susan K. Wisser and Brian J. Enquist - “Functional trait space and the latitudinal diversity gradient” (*Proceedings of the National Academy of Science* 111(38):13745-13750)
64. Benjamin Blonder<sup>β</sup>, Lindsey Sloat<sup>β</sup>, Brian J. Enquist, **Brian McGill** – “Separating Macroecological Pattern and Process: Comparing Ecological, Economic, and Geological Systems” (*PLOS One* 9(11): e112850. doi:10.1371/journal.pone.0112850)
65. Blois, Jessica; Nicholas J. Gotelli, Anna K. Behrensmeier, J. Tyler Faith, S. Kathleen Lyons, John W. Williams, Kathryn L. Amatangelo, Antoine Bercovici, Andrew Du, Jussi T. Eronen, Gary R. Graves, Nathan Jud, Conrad Labandeira, Cynthia Looy, **Brian McGill**, David Patterson, Richard Potts, Brett Riddle, Rebecca Terry, Anikó Tóth, Amelia Villaseñor and Scott Wing J. “A framework for evaluating the influence of climate, dispersal limitation, and biotic interactions using fossil pollen associations across the late Quaternary” (*Ecography* 2014 37:1095-1108)

## 2015

66. Hart, D. D.; K. P. Bell; L. A Lindenfeld; S. Jain; T. R. Johnson; D. Ranco; and **B. McGill**. 2015. “Strengthening the role of universities in addressing sustainability challenges: the Mitchell Center for Sustainability Solutions as an institutional experiment.” *Ecology and Society* 20 (2): 4. [online]  
URL: <http://www.ecologyandsociety.org/vol20/iss2/art4/>
67. **McGill, Brian J**; Maria A Dornelas; Nicholas J Gotelli; Anne E. Magurran “15 forms of biodiversity trends in the Anthropocene” (*Trends in Ecology and Evolution* 2015 30(2):104-113)
68. **McGill, Brian J** – “Land use matters” (*Nature* 2015 520(April 2):38-39)
69. Petchey, Owen; Mikael Pontarp; Thomas M. Massie; Sonia Kefi; Arpat Ozgul; Maja Weilenmann; Gian Marco Palamara; Florian Altermatt; Blake Matthews; Jonathan M. Levine; Dylan Z. Childs; **Brian J. McGill**; Michael E. Schaepman; Bernhard Schmid; Piet Spaak; Andrew P. Beckerman; Frank Pennekamp; Ian S. Pearse - “The ecological forecast horizon, and examples of its uses and determinants” (*Ecology Letters* 2015 18(7):597-611)
70. Simova, Irena; Cyrille Violle; Nathan J.B. Kraft; David Storch; Jens-Christian Svenning; Brad Boyle; John Donoghue<sup>α</sup>; Peter Jørgensen; **Brian J. McGill**; Naia Morueta-Holmes; William H. Piel; Robert K. Peet; Jim Regetz; Mark Schildhauer; Nick Spencer; Barbara Thiers; Susan Wisser; Brian J. – “Shifts in trait means and variances in North American tree assemblages: species richness patterns are loosely related to the functional space” (*Ecography* 2015 38(7):649-658)
71. Anne E. Magurran; Maria Dornelas; Faye Moyes; Nicholas J. Gotelli; **Brian McGill** – “Rapid biotic homogenization of marine fish assemblages” (*Nature Communications* 6:8405 doi: [10.1038/ncomms9405](https://doi.org/10.1038/ncomms9405))

72. Parmentier, Benoit<sup>γ</sup>; **Brian McGill**, Adam M. Wilson, James Regetz, Walter Jetz, Robert Guralnick, Mao-Ning Tuanmu, Mark Schildhauer – “Using multi-timescale methods and satellite-derived land surface temperature for the interpolation of daily maximum air temperature in Oregon” (*International Journal of Climatology* , 2015 35(13):3862-3878 )
73. Anita T Morzillo; Chris R Colocousis; Darla K Munroe; Kathleen P Bell; Sebastián Martinuzzi; Derek B Van Berkel; Martin J. Lechowicz; Bronwyn Rayfield; **Brian McGill** - "Communities in the middle": interactions between drivers of change and place-based characteristics in rural forest-based communities” (*Rural Studies* 42:79-90)

## 2016

74. S. Kathleen Lyons, Kathryn L. Amatangelo, Anna K. Behrensmeier, Antoine Bercovici, Jessica L. Blois, Matt Davis,, William A. DiMichele, Andrew Du, Jussi T. Eronen, J. Tyler Faith, Gary R. Graves,, Nathan Jud,, Conrad Labandeira,, Cindy V. Looy, **Brian McGill**, Joshua H. Miller, David Patterson, Silvia Pineda-Munoz, Richard Potts, Brett Riddle, Rebecca Terry, Anikó Tóth, Werner Ulrich, Amelia Villaseñor, Scott Wing, Heidi Anderson, John Anderson, Donald Waller & Nicholas J. Gotelli “Holocene shifts in the assembly of plant and animal communities implicate human impacts” (*Nature* 2016 529(7584):80-83)
75. Kristine Engemann, Brody Sandel, Brian J. Enquist, Peter Møller Jørgensen, Nathan Kraft, Aaron Marcuse-Kubitza, **Brian McGill**, Naia Morueta-Holme, Robert K. Peet, Cyrille Violle, Susan Wisser And Jens-Christian Svenning - “Patterns and drivers of plant functional group dominance across the Western Hemisphere: a macroecological re-assessment based on a massive botanical dataset” (*Botanical Journal of the Linnean Society* 2016 180(2):141-160)
76. Shannon Chapin<sup>β</sup>, Loftin, Cynthia; Drummond, Frank; Bushmann, Sarah; **McGill, Brian** “Parameterization of the InVEST Crop Pollination Model to spatially predict abundance of wild blueberry (*Vaccinium angustifolium*) native bee pollinators in Maine, USA” (*Environmental Modelling & Software* 2016 79:1-9)
77. Morueta-Holme, Naia; Blonder, Benjamin; Sandel, Brody; **McGill, Brian J.**; Peet, Robert K.; Ott, Jeffrey; Violle, Cyrille; Enquist, Brian; Jorgensen, Peter M.; Svenning, Jens - "A network approach for inferring species associations from co-occurrence data" (*Ecography* 39:1139-1150)
78. Miller, Kathryn<sup>β</sup>; Mitchell, Brian R. and **McGill, Brian J.** “Constructing multimetric indices and testing ability of landscape metrics to assess condition of freshwater wetlands in the Northeastern US” (*Ecological Indicators* 66:143-152)
79. Gregory R. Goldsmith, Naia Morueta-Holme, Brody Sandel, Eric D. Fitz, Samuel D. Fitz, Brad Boyle, Nathan Casler, Kristine Engemanns, Peter M. Jorgensen, Nathan J.B. Kraft, **Brian McGill**, Robert K. Peet, William H. Piel, Nick Spencer, Jens-Christian Svenning, Barbara M. Thiers, Cyrille Violle, Susan K. Wisser, & Brian J. Enquist “Plant-O-Matic: A dynamic and mobile guide to all plants of the Americas” (*Methods in Ecology and Evolution* 7(8):960-965)
80. Miller, Kathryn<sup>β</sup>; Fred W. Dieffenbach, J. Patrick Campbell, Wendy B. Cass, James A. Comiskey, Elizabeth R. Matthews, **Brian J. McGill**, Brian R. Mitchell, Stephanie J. Perles, Suzanne Sanders, John Paul Schmit, Stephen Smith, Aaron S. Weed

- “National Parks in the eastern United States harbor important older forest structure compared with matrix forests” (*Ecosphere* 7(7):e01404)
81. Kristine Engemann, Sandel, B., Boyle, B., Enquist, B.J., Jørgensen, P.M., Kattge, J., **McGill, B.J.**, Morueta-Holme, N., Peet, R.K., Spencer, N.J. and Violle, C “A plant growth form dataset for the New World” (*Ecology* 97(11):3243-3243)
  82. Naia Morueta-Holme, Benjamin Blonder, Brody Sandel, **Brian J. McGill**, Robert K. Peet, Jeffrey E. Ott, Cyrille Violle, Brian J. Enquist, Peter M. Jørgensen, and Jens-Christian Svenning. “A network approach for inferring species associations from co-occurrence data” (*Ecography* 39(12):1139-1150)
  83. S. Kathleen Lyons, J. H. Miller, K. L. Amatange, A. K. Behrensmeier, A. Bercovici, J. L. Blois, M. Davis, W. DiMichele, A. Du, J. T. Eronen, J. T. Faith, G. R. Graves, N. Jud, C. Labandeira, C. V. Looy, B. McGill, D. Patterson, S. Pineda-Munoz, R. Potts, B. Riddle, R. Terry, A. Tóth, W. Ulrich, A. Villaseñor, S. Wing, H. Anderson, J. Anderson and N. J. Gotelli (2016). "Lyons et al. reply." (*Nature* 538(7626): E3-E4.)
  84. S. Kathleen Lyons, J. H. Miller, A. Tóth, K. L. Amatangelo, A. K. Behrensmeier, A. Bercovici, J. L. Blois, M. Davis, W. A. DiMichelle, A. Du, J. T. Eronen, J. T. Faith, G. R. Graves, N. Jud, C. Labandeira, C. V. Looy, B. McGill, D. Patterson, S. Pineda-Munoz, R. Potts, B. Riddle, R. Terry, W. Ulrich, A. Villaseñor, S. Wing, H. Anderson, J. Anderson and N. J. Gotelli (2016). "Lyons et al. reply." (*Nature* 537(7618): E5-E6.)
- 2017**
85. Jeff Houlahan , Shawn McKinney, T. Michael Anderson, **Brian J. McGill**, “The priority of prediction in ecological understanding” (*Oikos* 126(1):1-7)
  86. Mark Vellend, Maria Dornelas, Lander Baeten, Robin Beauséjour, Carissa D Brown, Pieter De Frenne, Sarah C Elmendorf, Nicholas J Gotelli, Faye Moyes, Isla H Myers-Smith, Anne E Magurran, **Brian J McGill**, Hideyasu Shimadzu, Caya Sievers “Estimates of local biodiversity change over time stand up to scrutiny” (*Ecology* 98(2):583-590)
  87. Maureen D. Correll<sup>β</sup>, Whitney A. Wiest, Thomas P. Hodgman, W. Gregory Shriver, Chris S. Elphick, **Brian J. McGill**, Kathleen O’Brien, and Brian J. Olsen "Predictors of specialist avifaunal decline in coastal marshes" (*Conservation Biology* 31(1):172-182)
  88. Benjamin Blonder, Derek E. Moulton, Jessica Blois, Brian J. Enquist, Bente J. Graae, Marc Macias-Fauria, **Brian McGill**, Sandra Nogué, Alejandro Ordonez, Brody Sandel, Jens-Christian Svenning “Predictability in community dynamics” (*Ecology Letters* 20(3):293-306)
  89. Messier, Julie<sup>β</sup>; **Brian J. McGill**, Brian Enquist, Martin Lechowicz - “Trait variation and integration across scales: is the leaf economic spectrum present at local scales?” (*Ecography* 40(6):685-697)
  90. Gotelli, Nicholas J; Hideyasu Shimadzu, Maria Dornelas, **Brian J. McGill**, Faye Moyes, Anne E. Magurran - “Community-level regulation of temporal trends in biodiversity” (*Science Advances* 3(7): e1700315)
  91. Csergő, A. M., Salguero-Gómez, R., Broennimann, O., Coutts, S. R., Guisan, A., Angert, A. L., Welk, E., Stott, I., Enquist, B. J., **McGill, B.**, Svenning, J.-C., Violle,

- C. and Buckley, Y. M. (2017), Less favourable climates constrain demographic strategies in plants (*Ecology Letters* 20(8):969-980)
92. Julie Messier<sup>β</sup>, Martin Lechowicz, **Brian McGill**, Cyrille Violle, Brian J. Enquist - “Interspecific integration of trait dimensions at local scales: the plant phenotype as an integrated network” (*Journal of Ecology* 105(6):1775-1790)
- 2018**
93. Kathryn M. Miller<sup>β</sup> and Brian J. McGill “Land use and life history limit migration capacity of eastern tree species” – (*Global Ecology and Biogeography* 27(1):57-67)
94. Derek B. Van Berkel<sup>γ</sup>, Bronwyn Rayfield, Sebastián Martinuzzi<sup>β</sup>, Martin J. Lechowicz, Eric White, Kathleen P. Bell, Chris R. Colocousis, Kent F. Kovacs, Anita T. Morzillo, Darla K. Munroe, Benoit Parmentier, Volker C. Radeloff, **Brian J. McGill** “Recognizing the ‘sparsely settled forest’: Multi-decade socioecological change dynamics and community exemplars” (*Landscape and Urban Planning* 170:177-186)
95. Maitner, Brian S, Boyle, B; Casler, N; Condit, R; Donoghue, J; Duran SM; Guaderrama, D; Hinchliff CE; Jorgensen, PM; Kraft NJB; **McGill, B** and 11 more authors “The BIEN R package: a tool to access the Botanical Information and Ecology Network (BIEN) database” (*Methods in Ecology and Evolution* 9(2):373-379)
96. Irena Simova and 20 other authors including **Brian J. McGill** 10<sup>th</sup> - “Spatial patterns and climate relationships of major plant traits in the New World differ between woody and herbaceous species” – (*Journal of Biogeography* 45(4):895-916)
97. Maureen D. Correll<sup>β</sup>, Whitney A. Wiest, Thomas P. Hodgman, Joseph T. Kelley, **Brian J. McGill**, Chris S. Elphick, W. Gregory Shriver, Meaghan Conway, Christopher R. Field and Brian J. Olsen (2018) “A Pleistocene disturbance event describes modern diversity patterns in tidal marsh birds” (*Ecography* 41(4):684-694)
98. Kathryn Miller<sup>β</sup>; **McGill, Brian J.**; Mitchell, Brian R; Comiskey, Jim; Dieffenbach, Fred W.; Matthews, Elizabeth R.; Perles, Stephanie J.; Schmit, John Paul; Weed, Aaron S “Eastern national parks protect greater tree species diversity than unprotected matrix forests” (*Forest Ecology and Management* 2018 414:74-84)
99. **McGill, Brian J** & Potochnik, Angela “Mechanisms are not components: a response to Conolly et al” (*Trends in Ecology and Evolution* 33(5):304-305)
100. Dornelas, M, Antao, Moyes, F, Bates, AE, Magurran, AE and over 200 more including McGill, Brian J “BioTIME: A database of biodiversity time series for the Anthropocene” (*Global Ecology and Biogeography* 2018 27(7):760-786)
101. Julie Messier<sup>β</sup>; Violle, Cyrille; Enquist, Brian J.; Lechowicz, Martin J.; **McGill, Brian J.** – “Similarities and differences in intrapopulation trait correlations of co-occurring tree species: consistent water-use relationships amid widely different correlation patterns” (*American Journal of Botany* 2018 105(9):1477-1490)
102. Chase, Jonathan\*, **McGill, Brian J\***, McGlinn, Daniel J; May, Felix; Blowes, Shane A.; Xiao, Xiao<sup>γ</sup>; Knight, Tiffany M; Purschke, Oliver; Gotelli, Nicholas J. (\*=co-first author) “Embracing scale-dependence to achieve a deeper understanding of biodiversity and its change across communities” (*Ecology Letters* 2018 21(11):1737-1751)
103. Susy Echeverría-Londoño, Brian J Enquist, Danilo M Neves, Cyrille Violle, Brad Boyle, Nathan JB Kraft, Brian S Maitner, **Brian McGill**, Robert K Peet, Brody

Sandel, Stephen Andrew Smith, Jens-Christian Svenning, Susan K Wiser, Andrew J Kerkhoff – “Plant functional diversity and the biogeography of biomes in North and South America” (*Frontiers in Ecology and Evolution* 2018 6:219)

## 2019

104. **McGill, Brian J** – “The what, how, and why of doing macroecology” (*Global Ecology and Biogeography* 2019 28(1):6-17)
105. Davies, Jonathan; James Regetz; Elizabeth Wolkovich; **Brian J. McGill** – “Phylogenetically weighted regression: a method for modeling non-stationarity on evolutionary trees” (*Global Ecology and Biogeography* 2019 28(1):6-17)
106. Daniel J. McGlinn, Xiao Xiao, Felix May, Nicholas J. Gotelli, Thore Engel, Shane A. Blowes, Tiffany M. Knight, Oliver Purschke, Jonathan M. Chase, **Brian J. McGill** “MoB (Measurement of Biodiversity): a method to separate the scale-dependent effects of species abundance distribution, density, and aggregation on diversity change” (*Methods in Ecology and Evolution* 2019 10(2):258-269)
107. Dornelas, Maria; Gotelli, Nicholas; Shimadzu, Hideyasu; Moyes, Faye; Magurran, Anne; **McGill, Brian** – “A balance of winners and losers in the Anthropocene” (*Ecology Letters* 2019 22(5):847-854)
108. Laura H. Antão, **Brian McGill**, Anne E. Magurran, Amadeu Soares and Maria Dornelas – “ $\beta$ -diversity scaling patterns are consistent across metrics and taxa” (*Ecography* 2019 42(5):1012-1023)
109. Kathryn M. Miller<sup>β</sup> and **Brian J. McGill** “Compounding human stressors cause major regeneration debt in over half of eastern US forests” (*Journal of Applied Ecology* 2019 56(6):1355-1366)
110. Irena Šimová; Brody Sandel; Brian J. Enquist; Sean T. Michaletz; Jens Kattge; Cyrille Violle; **Brian J. McGill**; Benjamin Blonder; Kristine Engemann; Robert K. Peet; Susan K. Wiser; Naia Morueta-Holme; Brad Boyle; Nathan J. B. Kraft; Jens-Christian Svenning “The relationship of woody plant size and leaf nutrient content to large-scale productivity for forests across the Americas” (*Journal of Ecology* 107(5):2278-2290)
111. Chase, Jonathan; **McGill, Brian J.**; Thompson, Patrick; Antão, Laura; Bates , Amanda ; Blowes, Shane; Dornelas, Maria; Gonzalez, Andrew; Magurran, Anne; Supp, Sarah; Winter, Marten; Bjorkmann, Anne; Bruelheide, Helge; Byrnes, Jarrett; Cabral, Juliano Sarm – “Species richness change across spatial scales” (*Oikos* 128(8):1079-1091)
112. Shane A. Blowes and Sarah R. Supp<sup>γ</sup>, Laura H. Antão, Amanda Bates, Helge Bruelheide, Jonathan M. Chase, Faye Moyes, Anne Magurran, **Brian McGill**, Isla Myers-Smith, Marten Winter, Anne D. Bjorkman, Diana Bowler, Jarrett E.K. Byrnes, Andrew Gonzalez, Jes Hines, Forest Isbell, Holly Jones, Laetitia M. Navarro, Patrick Thompson, Mark Vellend, Conor Waldock, Maria Dornelas “The geography of biodiversity change in marine and terrestrial assemblages” (*Science*)
113. **Brian J. McGill**, Jonathan M. Chase, Joaquín Hortal, Isaac Overcast, Andrew J. Rominger, James Rosindell, Paulo A. V. Borges, Brent C. Emerson, Rampal Etienne, Michael J Hickerson, Luke Mahler, Francois Massol, Angela McGaughan, Pedro Neves, Christine Parent, Megan Ruffley, Catherine E. Wagner, Rosemary Gillespie “Unifying macroecology and macroevolution to

- answer fundamental questions about biodiversity” (*Global Ecology and Biogeography* Online early)
114. Maria A Dornelas, Elizabeth M. P. Madin, Michael Bunce, Joseph D. DiBattista, Mark Johnson, Joshua S. Madin, Anne E. Magurran, **Brian J. McGill**, Nathalie Pettorelli, Oscar Pizarro, Stefan B. Williams, Marten Winter, Amanda E. Bates “Towards a macroscope: leveraging technology to transform the breadth, scale and resolution of macroecological data” (*Global Ecology and Biogeography* Online early)
  115. Enquist, Brian J, Xiao Feng, Brad Boyle, Brian Maitner, Erica A. Newman, Peter Møller Jørgensen, Patrick R. Roehrdanz, Barbara M. Theirs, Joseph R. Burger, Richard T. Corlett, Thomas L. P. Couvreur, Gilles Dauby, John C. Donoghue, Wendy Foden, Jon C. Lovett, Pablo A. Marquet, Cory Merow, Guy Midgley, Naia Morueta-Holme, Danilo Neves, Ary Oliveira-Filho, Nathan J. B. Kraft, Daniel S. Park, Robert K. Peet, Michiel Pillet, Josep M. Serra-Diaz, Brody Sandel, Mark Schildhauer, Irena Šímová, Cyrille Violle, Jan J. Wieringa, Susan Wisser, Lee Hannah, Jens-Christian Svenning, **Brian J. McGill**. “The commonness of rarity: Global and future distribution of rarity across land plants “ (*Science Advances* accepted )
  116. Jens Katge, ..., **Brian J. McGill**, ... Christian Wirth (over 200 authors) “TRY plant trait database - enhanced coverage and open access” (*Global Change Biology* accepted)

#### **In revision (partial list)**

**McGill, Brian J** - "The SAASR pattern (structure of abundance across species' ranges): synthesis, evidence and mechanisms" (in revision)

$\alpha$  – undergraduate student under my supervision

$\beta$  – graduate student under my supervision or on their committee

$\gamma$  – postdoctoral fellow under my mentorship

#### **Reports and gray literature**

1. Dietl et al. “Conservation paleobiology: Opportunities for the Earth Sciences” (Report of an NSF-Funded Workshop held at the Paleontological Research Institution, Ithaca, New York, June 3-5, 2011)

#### **Non-peer-reviewed editorials**

1. **Brian J. McGill**, Maria Dornelas, Richard Field “GEB goes double blind” (*Global Ecology and Biogeography* 2017 26(11):1223-1224)
2. Maria Dornelas, Richard Field, **Brian McGill** “In gratitude for altruistic peer reviewers - Reviewer and Associate Editor awards 2017” (*Global Ecology and Biogeography* 2018 27(1):1)
3. Brian J. McGill, Miguel Araujo, Janet Franklin, H. Peter Linder, Michael N Dawson - “Writing the future of biogeography” (*Frontiers in Biogeography* 2019 in press)

### **Software developed and provided to research community**

- 2011 Palamedes (a variety of tools for exploring species abundance distributions) (in beta testing by 6 researchers) (currently by email to author, to be published on web)
- 2006 A numerical solution to the analytical form of the zero sum multinomial (requested from me by over a dozen researchers, also available at <http://www.esapubs.org/archive/ecol/E087/080/>)
- 2005 Monte Carlo simulation of an assemblage of local neutral communities (used by 2 other researchers) (email to author)
- 2003 Monte Carlo simulation of neutral communities for the estimation of parameters (downloaded by over 70 researchers) <http://www.brianmcgill.org/zsm>.
- 2004 Matlab dataframe (implements R-like dataframes and models in Matlab) (downloaded by dozens of users) (<http://www.mathworks.com/matlabcentral/fileexchange/6657>)
- Cheatsheets (quick 1-2 pages summaries of syntax) for Matlab, R, PHP, SQL (downloaded hundreds of times) (<http://www.brianmcgill.org/labnotes.html>)

### **Grants and fellowships**

<b>Total Amount</b>	<b>Duration</b>	<b>Role</b>	<b>Agency</b>	<b>Title</b>
~ \$500,000 (In preparation)	5 years	PI (collaborative with SUNY Stony Brook)	NSF RCN	Drawing actionable conclusions for conservation from paleoecological data
\$985,531 in review	5 years	co-PI (Mortelliti PI)	NSF PCE	Predicting the climate-induced expansion of woody plant species by incorporating the critical role of scatter-hoarders
\$3,000,000	2019-2023	SKP (Weiskittel PI)	NSF OIA EPSCOR Track II	RII Track-2 FEC: Leveraging Intelligent Informatics and Smart Data for Improved Understanding of Northern Forest Ecosystem Resiliency (INSPIRES)
€971,008,50 (UMaine portion €88,208)	2017-2021	PI at partner Institution	BELSPO (Belgian Science Funding Agency)	Remote Sensing for Epidemiology in African Cities
€50,000	2017-2019 (extension 2020 requested)	Maine PI on collaborative project	iDiv (Germany DFG)	Measurement of Biodiversity
€14,200 (awarded but	2018 Spring	Awardee	Fulbright	Fulbright Scholar (Steps toward a theoretical grounding for the

declined) \$801,000 (UMaine portion \$89,964)	2016-2020	PI on collaborative project	NSF	ecology of phenotypes) Collaborative Research: ABI Development: Creating a generic workflow for scaling up the production of species ranges
\$49,426	2016-2017	Co-PI	NSF	PACE Workshop: Integrating Paleoecology and Community Ecology
\$66,082	2015-2016	Co-PI	NASA Climate Change	1 year supplement to previous grant
23,500 service units (SU)	2015	PI	XSEDE (US research super computer network)	Modelling species ranges now and in the future for plants of the New World
\$3,000,000	2013-2016	Senior Key Personnel	NSF	Strengthening the scientific basis for decision-making: Advancing knowledge- action capacities in a coupled coastal-inland system
\$4,000,000	2013-2014	co-PI	NSF EPSCOR	Maine's Sustainability Science Initiative Yr 5
\$4,000,000	2012-2013	co-PI	NSF EPSCOR	Maine's Sustainability Science Initiative Yr 4
\$150,000	2012-2014	PI (Kathleen Bell also PI)	SESYNC (NSF)	Pursuit: Rural forest communities at a tipping point? trends and actionable research opportunities
€235,000	2011-2014	coPI (Menno Shcilthuzien PI, 5 other coPIs)	Netherlands Organization for Scientific Research.	Determinants of species diversity at 14 spatial scales in tropical microsnails from endangered limestone habitats.
\$1,636,267 (\$257,203 UM portion)	4 years 2011-2015	coPI (Walter Jetz, Yale PI ; NASA Ames, U Colorado)	NASA Climate Change	Integrating global species distributions, remote sensing information and climate station data to assess recent biodiversity response to climate change

\$22,000	1 year	PI (5 coPIs)	UM Sustainability Solutions Initiative	ECCO: Effects of Climate Change on Organisms
\$42,216	18 mos	coPI (Kathleen Bell PI)	UM Sustainability Solutions Initiative	Lessons from a diverse portfolio: Building applicable knowledge through a multi-method framework for coupled-systems research
\$99,900	18 mos	coPI (Shaleen Jain PI)	UM Sustainability Solutions Initiative	An SSI Cyber-Informatics Development Planf
\$101,400	2 years 2010-2012	Lead PI (with Walter Jetz, Rob Guralnick, Jana McPherson as coPIs)	NCEAS working group	Choosing (and making available) the right environmental layers for modeling how the environment controls the distribution and abundance of organisms
\$100,000 +overhead	2 years 2011-2012	“	iPlant	Additional funding for a full-time geospatial analyst leveraged from above NCEAS working group
\$21,330	9 months 2010-2011	”	NCEAS	Additional funding for a graduate student leveraged from above NCEAS working group
\$2,000	1 year 2008	coPI (with Greg Mikkelson)	McGill School of the Environment – Seed money for interdisciplinary grants	Relationships between Diversity and Stability in North American Bird Communities
\$374,000	3 years 2007-2010	coPI (PI Dominique Berteaux, 3 other coPIs)	NSERC – industry partners include Ouranos, Parks Canada, Nature Conservancy, Quebec Environment Ministry	Effects of climate change on Quebec biodiversity
\$20,000	1 year 2007-2008	PI, 4 other coPIs	TLS T-Pulse Biology Redesign project	Increasing student engagement and learning in three large,

\$79,350	2 years 2006-2008	PI, co-PIs are Rampal Etienne, John Gray & Jessica Green	NCEAS Working group	introductory lecture classes using clicker technology Tools and fresh approaches for species abundance distributions
\$539,700	3 years 2006-2009	co-PI, PI is Fangliang He	Sustainable Forest Management	Developing biodiversity benchmarks for the boreal mixedwood forests of Alberta
\$324,671	1 year 2007-2008	PI & Sole investigator	Canadian Fund For Innovation LOF	Clima-dispersatron experimental apparatus and database of abundances across space to provide infrastructure for the study of species ranges
\$116,000	5 years 2006-2011 (cancelled 2008 when I moved to US)	PI & Sole investigator	NSERC Discovery Grant	Mechanisms and consequences of variation in abundance across a species range
\$100,000	2 years 2003-2005	PI & Sole investigator	NSF Bioinformatics Postdoctoral Fellowship	Measuring spatial variation in vital rates and stochasticity at the scale of a species range
\$54,500	3 years non- consecutive 1998-2002	Fellowship recipient	NSF Graduate Fellowship	
\$13,000	1 year 1997-1998	Fellowship recipient	U of A Flinn Biomathematics Fellowship	
\$8,000	2 years 1998-2000	Fellowship recipient	Flinn biomathematics	
\$500	2002	Sole investigator	Dept of Biology, U of Arizona	Small grant for research
\$950	2001	Sole investigator	Biodiversity RTG, Dept of Biology, UofA	Small grant for meeting attendance
\$135	2001	Sole investigator	British Ecological Society	Grant to attend meeting
\$850	2000	Sole investigator	Dept of Biology, U of Arizona	Small grant for research

~\$1,000	1999	Participant	NSF conference attendance grant to Simon Levin	“Mathematical Problems Arising from Biology” conference
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### **Press coverage**

1. “The end of the beginning for neutral theory” by Sean Nee and Graham Stone in *Trends In Ecology and Evolution* "Research Focus" section 2003 18(9):433-34 (covers my manuscript #1)
2. Manuscript #1 rated “Must Read” in Faculty of 1000 by Doug Erwin
3. Manuscript #2 – figure 5 in this paper used in basic ecology textbook (*Economy of Nature* 6<sup>th</sup> edition by Ricklefs page 211)
4. Faculty of 1000 Biology, by John Pandolfi, 16 Dec 2005  
<http://www.f1000biology.com/article/id/1023404/evaluation> (covers my manuscript #7)
5. “An ecologist ponders the pendulum of natural history's paradigm” by Shahid Naeem in *Nature's Journal Club* 2006 440:1093 (covers my manuscript #8)
6. “Ecologisch nihilisme” –by Menno Schilthuisen Bionieuws 2006  
(<http://www.bionieuws.nl/index.php?reframe=artikel.php?id=2619>)
7. “Beyond Neutrality – ecology finds its niche” by Virginia Gewin *PLOS Biology* 2006 (mentions my manuscripts #1, #7, #8 above)
8. “The cost of leafing” by John Whitfield in *Nature* 2006 444(30 Nov):539-541 (covers my manuscript #8)
9. Manuscript #11 selected by journal editors for a press release as one of their highest profile pieces. The 3rd most frequently downloaded publication for that journal for most of its first year.
10. Manuscript #15 highlighted in a commentary (News & Views style piece by the editor of GEB, David Currie, in *Journal of Biogeography*)
11. Manuscript #15 rated a “Must Read” in Faculty of 1000 by George Malanson
12. Manuscript #16 appeared as the most downloaded publication in *Ecology Letters* for a good part of the year after its publication
13. Manuscript #22 was the 5<sup>th</sup> most downloaded paper in 2010 for *Ecology Letters*, also recommended by two members of Faculty of 1000
14. Manuscript #23 featured as one of two manuscripts in main discussion question at end of chapter 1 in Harte's book *Maximum Entropy and Ecology: A theory of Abundance, Distribution and Energetics* book
15. Manuscript #30 – figure 15 in this paper used in a high school biology book (*Biology – Nelson*)
16. Manuscript #36 – one of the top 10 downloaded papers for 2010-2012 in *Philosophy of Science*
17. Manuscript #56 – highlighted at the front as the “Editor's Choice” for the issue, top 10 downloaded
18. Manuscript #57 – covered in BBC, Christian Science Monitor, Scotsman, Science Daily and Scientific American blog and rated Excellent by two reviewers in Faculty of 1000

### ***Invited symposia and working groups***

*Groups in bold are ones where I was at least a co-organizer or coPI*

1. sEcoEvo (iDiv working group on integrating ecology and evolution in islands) – March 2018
2. **Daniel McGlenn, Jon Chase, Brian McGill, Nick Gotelli, Xiao Xiao, Shane Bellows “The Empiricists’ guide to the analysis of biodiversity across scales” Workshop Ecological Society of America 2017**
3. **Jacquelyn Gill, Brian McGill, Jack Williams “PACE workshop: Linking Paleocology and Community Ecology” – NSF funded workshop held at Schoodic May 2017**
4. Can experiments inform macroecology? Returning to the definition of macroecology. - Modeling large-scale ecological and evolutionary dynamics" Symposium at International Biogeography Society 2017 - Brian McGill
5. **“Going Macro: Is Scaling Up All the Same?” – ESA Ignite Session (August 2015) co-organizer with Margaret Kosmala**
6. **“Understanding Temporal Trends of Biodiversity” – ESA Symposium (August 2015) co-organizer with Nick Gotelli, Anne Magurran and Maria Dornelas**
7. **“Measuring biodiversity correctly” – iDiv, Leipzig, Germany (June 2015) – co-organizer with Jon Chase**
8. “Biodiversity Change” – CIEE, Vancouver, Canada (May 2015)
9. “Observing Biodiversity from Space” – NASA funded working group at NCEAS to “develop a vision for global biodiversity science from space... with 16-20 experts” (December 2014)
10. “Biodiversity Change” – iDiv, Leipzig, Germany (October 2014)
11. Evolution of Terrestrial Ecosystems – NSF RCN (June 2013, January 2014; September 2014)
12. **“Rural forest communities at a tipping point? trends and actionable research opportunities” – Socio-environmental Synthesis Center (SESYNC) (Oct 2012-May 2014) – co-organizer with Kathleen Bell**
13. “Influence of Ecological Interactions on Evolution of Species Ranges” – DIVERSITAS and McGill Center for Biodiversity – September 2012
14. “Conservation Paleobiology Workshop” – Paleontological Research Institution, Ithaca, NY (June 2011) (funded by NSF)
15. “Biological diversity in a changing world” – satellite working group at Kavli Royal Society Center (Oct 2010)
16. “Forecasting phenology: Integrating ecology, climatology, and phylogeny to understand plant responses to climate change” – NCEAS Working group (May 2010, Dec 2010, Spring 2011)
17. **“Choosing (and making available) the right environmental layers for modeling how the environment controls the distribution and abundance of organisms” - NCEAS Working group (March 2010, Oct 2010, Spring 2011) (PI, 3 coPIs)**
18. “Integrating Functional and Evolutionary Dynamics at Multiple Scales” – NIMBIOS Working Group (Jun 2009, Mar 2010, Sep 2010)
19. **“Universal patterns across disciplines” – a working group at Santa Fe Institute – Feb 2009 (May 2010 in Prague also) – co-organizer, Jeff Nekola PI, continuing under grant from Czech government**

20. “BIEN: Botanical EcoInformatics Network” – working group at NCEAS for (Dec 2008, Dec 2009, Dec 2010, Oct 2011, Nov 2012) – PI Brian Enquist & Rick Condit
21. USA National Phenology Network – an RCN examining the building of a database of phenology for North America - Sep 2008 - PI Mark Schwartz
22. **“Grinnellian Niches or Just Statistical Correlates? Opportunities for Ecological Inference From Species Distribution Models”** ESA August 2008 Organized oral session (co-organizer, Walter Jetz organizer)
23. “Perspectives on the origin and conservation of biodiversity in Patagonia” – NESCent Working group June 2008
24. TraitNET – core participant in an RCN examining building a universal database of traits – December 2007 – PI Shaid Naeem
25. **“Tools and fresh approaches for species abundance distributions”** - Working group at NCEAS for 2006, 2007, 2008 (PI, Co-PI's Rampal Etienne, John Gray, Jessica Green)
26. “Species spread across landscapes: the integration of theoretical and empirical approaches” Workshop – May 2007 – organized by Madhur Anand/Chris Bauch
27. **A ‘new’ paradigm for community ecology: building from functional ecology”** – Ecological Society of America 2004. Co-organized with Brian Enquist (<http://www.brianmcgill.org/ESA04.htm>)
28. “Beyond endangered, mass gaps and abundance” – presentation at working group on gaps in body mass distributions – December 2003 – Host: Craig Allen and Buzz Holling

### ***Invited Presentations***

**(not including presentations at invited symposia/working groups above)**

1. “Getting serious about a top-down view of community assembly” – May 2019 – SUNY Stony Brook
2. “Global Change and Biodiversity: Understanding our future through the past” – April 2019 – Bard College (primarily undergraduate class)
3. “My adventures in studying SES systems” – January 2019 – SESYNC seminar speaker, Annapolis, MD
4. “Publishing Panel” (one of eight invited panel members answering questions on the future of scholarly publishing) – January 2019 – International Biogeography Society Malaga Spain
5. “Bringing data to the biodiversity orthodoxy” – July 2018 – British Ecological Society Macroecology (Conference Keynote Speaker)
6. “An attempt to build a top-down community assembly theory” – February 2018 – McGill University – host Viriginie Millien
7. “Global Change and Biodiversity: Understanding our future through the past” – Monte Verde Research Institute, Costa Rica (public presentation with 75 attendees)
8. “Species and biodiversity responses to the Anthropocene” – March 2017 – Colorado State – Visting Distinguished Ecologist Series – Host: Colleen Webb
9. “Can experiments inform macroecology? Returning to the definition of macroecology” – January 2017 – International Biogeography Society
10. “Getting serious about a top-down view of community assembly” – February 2016 – University of Edinburgh, John Muir Lecture – Host: Isla Myers-Smith

11. "Getting serious about a top-down view of community assembly" – April 2015 – University of Massachusetts Boston – Host Jarrett Byrnes
12. "Getting serious about a top-down view of community assembly" – April 2015 – Harvard Arnold Arboretum – Host – Lizzie Wolkovich
13. "Getting serious about a top-down view of community assembly" and "The next 25 years of ecology" – March 2015 – University of Oklahoma – Host: Mike Kaspari
14. "Three unusual views of community assembly" – January 2015 – Michigan State Kellogg Biological Station – Host: Chris Kalusmeier
15. "Scientific communities, scientific discussions and social media" – August 2014 - Universidade Federal de Minas Gerais, Brazil – Host: Marco Mello
16. Session organizer – July 2014 – Biddeford, ME; Gordon Conference on Unifying Ecology across Scales
17. Diversity trends: scale and structure matter – May 2014 – Montreal – Canadian Society for Ecology and Evolution
18. "Three unusual views of community assembly" - March 2014 – Yale – Host: David Vasseur
19. The state of the art in functional traits - February 2014 - Great Barrier Reef Traits workshop at AIMS
20. January 2014 – SESYNC Virtual Panelist (1 of 3) - Workshop: Socio-Environmental Synthesis Research Proposal Writing
21. "Null model" speakers panel – November 2013 – International Biogeography Society
22. Two efforts to bring physiology into community ecology: functional traits and responses to climate change– November 2013 – University of Vermont – Host: Nick Gotelli
23. Is there a mechanism deficit in macroecology – August 2013 – INTECOL – (Symposium Keynote)
24. Community assembly: mechanisms and patterns through time – June 2013 – Smithsonian Natural History Museum – Host: Kate Lyons
25. Three unusual views of community assembly – May 2013 – University of St Andrews – Host: Anne Magurran
26. Three unusual views of community assembly – April 2013 – Washington University – Host: Tiffany Knight
27. Macroecology – successes and failures – February 2013 – UC Berkeley – Host: John Harte
28. Socially relevant ecology=global change + boundaries – October 2012 – SESYNC – Host: Margaret Palmer
29. Community assembly and traits – Oct 2012 – University of New Brunswick
30. "Three unusual views of community assembly" – May 2012 – Montepelier, France – Host: Elena Kazakou
31. "Three unusual views of community assembly" – May 2012 – Groningen, Netherlands – Host: Han Olf
32. "How close are we to a unified theory of biodiversity?" - February 2012 – Utah State – Invited by Graduate Students, Host: Aldo Compagnoni

33. “What will be the effects of climate change on the natural world and what should concerned scientists do about it?” - February 2012 – Utah State – Invited by Graduate Students, Host: Aldo Compagnoni
34. “Baby steps towards a predictive theory of how species (including humans) will respond to climate change” – December 2011 – Climate Change Institute, University of Maine
35. “Response of organisms to anthropogenic change: detection and prediction” - October 2011 – Wright State University – Host: Volker Bahn
36. “Species Ranges and Climate Change” – May 2011 – International Symposium for Biodiversity and Theoretical Ecology, Sun Yat Sen University, Guangzhou, China
37. “Bird populations and communities through time in a changing environment” – Oct 2010 – Royal Society – “Biological diversity in a changing world” symposium chaired by Anne Magurran & Maria Dornelas
38. “Response of organisms to anthropogenic change: detection and prediction” – Sep 2010 – University of Maine, Wildlife Ecology – Host: Ed Hughes
39. “Predicting the distribution and abundance of organisms in the face of global change” – May 2010 – University of New Hampshire – Host: Scott Ollinger/Tom Lee
40. “Predicting the distribution and abundance of organisms in the face of global change” – Mar 2010 – University of Maine – Host: Jasmine Saros
41. “Variation in abundance across space and between species - towards a general theory” – Dec 2009 – NCEAS Ecolunch speaker – Host: Jennifer Balch
42. “Determinants of abundance across space, time, and species” – Apr 2009 – University of Arizona, Dept of Ecology and Evolutionary Biology
43. “Large spatial, temporal and taxonomic scales: another place where ecology meets evolution” – January 2008 – Michigan State – Host: Tom Getty
44. “Patterns and processes in the variation of abundance between species and across space” – January 2008 – University of Connecticut – Host: Mike Willig
45. “Variation in abundance across space and between species - towards a general theory” – December 2007 – University of Illinois – Host: Adam Davis
46. “Understanding abundance across large spatial and temporal scales using informatics” –October 2007 - University of Arizona – Host: Dave Breshears
47. “Abundance across space: patterns and consequences” – May 2007 – University of Guelph ESRI Spatial Conference – Host: Madhur Anand/Chris Bauch
48. “Variation in abundance within and between species” – May 2007 – McGill University Natural Resource Department – Host: Murray Humphries
49. “Ecoinformatics” – March 2007 - IABIN Ecosystem Thematic Network (Panama City) – Opening presentation – Host: Ivan Valdespino
50. “Abundance across space: patterns and consequences” – March 2007 – Universite de Montreal – Host: Lael Parrot
51. “Abundance across space and between species: towards an alternative unified theory” – Nov 2006 – University of Guelph– Host: Kevin McCann
52. “Abundance across space and between species: towards an alternative unified theory” – Oct 2006 – University of Ottawa– Host: Jeremy Kerr

53. “Challenges in computational biology”, Co-presentation with Gregor Fussman and Frederic Guichard – Oct 2006 – Computational Group, McGill University – Host: Thomas Wihler
54. “Abundance across space – towards an understanding of species ranges” – Sep 2006 – Department of Geography, McGill University – Host Raja Sengupta
55. “Abundance across space and between species: towards an alternative unified theory” – Sep 2006 – University of Quebec at Montreal– Host: Beatrix Beisner
56. “Abundance across space and between species: an ecoinformatic approach” – Feb 2006 – McGill University – McGill Centre for Bioinformatics
57. “Abundance across space and between species: towards an alternative unified theory” – Feb 2006 – Universite de Sherbrooke – Host: Bill Shipley
58. “Abundance across space and between species: towards an alternative unified theory” – Nov 2005 – University of Missouri at St. Louis – Host: Robert Ricklefs
59. “Unified theories of distribution and abundance” - Jul 2004 – University of Maine at Orono – Host: Volker Bahn
60. “Spatial ecology, community structure, and global change” - Jun 2004 – McGill University – Host: Dan Schoen
61. “Species ranges, community structure and global change” – Apr 2004 – Utah State – Host: Jim Haefner
62. “Do large scale spatial patterns explain local species abundance distributions?” – Apr 2004 – Michigan State
63. “Linking large scale spatial processes with local community structure” – Mar 2004 – Host: Hugh Possingham
64. “Do large scale spatial patterns explain local species abundance distributions?” – Feb 2003 – SUNY Stony Brook – Host: Lev Ginzburg
65. “Explaining species abundance distributions and other patterns
66. “ - Nov 2003 – Mt Holyoke – Host: Stan Rachootin
67. “Do large scale spatial patterns explain local species abundance distributions?” – Oct 2003 – Kellogg Biological Station – Host: Gary Mittelbach
68. “From mechanism to test?: a spatial theory of macroecological patterns” – Dec 2002 – Biological complexity seminar, University of New Mexico – Host: James Brown
69. "Spatial processes in macroecology" - May 2002 - Stanford University – Host: Henrique Pereira

### ***Other selected Presentations and Posters***

1. Brian McGill “The variation in population dynamics across a species range is mostly about variability” – January 2019 – International Biogeography Society Malaga Spain
2. Brian McGill; Jonathan Chase, Daniel McGlinn, Nicholas Gotelli – August 2018 – “Why we have to unpack the notion of biodiversity and how to unpack it” – Ecological Society of America New Orleans
3. Brian Enquist, Corey Merow, Brian McGill and 8 others – August 2018 – “Muy BIEN: Next steps in a global workflow for integrating plant botanical observations” – Ecological Society of America New Orleans
4. Daniel McGlinn, Xiao Xiao, Nicholas Gotelli, Brian McGill, Jonathan Chase, Tiffany Knight “A multiscale comparison of ant biodiversity in restored and remnant

- cedar glades reveals a missing component of community structure” (2017)  
Ecological Society of America Portland
5. Maria Dornelas, Anne Magurran, Nick Gotelli, Brian McGill, Hideyasu Shimadzu (2017) “Temporal turnover in ecological communities” Ecological Society of America Portland
  6. Annia Streher, Brian McGill, Patricia Morellato, Thiago Silva (2017) “Using trait variation to understand plant distribution across an elevational gradient” (poster) Ecological Society of America Portland
  7. Jacquelyn Gill, Jack Williams, Brian McGill & Steve Jackson (2017) “Come together, right now: Ecological communities as temporal phenomena” Ecological Society of America Portland
  8. Xiao Xiao & Brian McGill (2017) - "Reconcile the mechanistic view and the statistical view: A case study of diversity-range size relationship" - International Biogeography Society, Tucson
  9. Anna Csergo & 13 others including Brian McGill (2017) - “Demographic Strategies are more constrained in less suitable climates” - International Biogeography Society, Tucson
  10. Benjamin Blonder & 13 others including Brian McGill (2017) - “Predictability in community dynamics” - International Biogeography Society, Tucson
  11. Ian McFadden and 23 others including Brian McGill (2017) - “Climate drives latitudinal and elevational beta diversity gradients across the Americas through elevated tropical speciation rates” - International Biogeography Society, Tucson
  12. Daniel J. McGlinn and 7 others including Brian McGill (2017) – “A new framework for the measurement of biodiversity (MoB) decomposes changes in species richness into scale-specific components” – Ecological Society of America, Fort Lauderdale
  13. Brian J. McGill (2015) - Solving informatics challenges to advance plant ecology: A vision for the next 100 years – Ecological Society of America, Baltimore
  14. S. Kathleen Lyons and 30 others including **McGill, Brian** (2015) – “Species associations of plant and mammal communities from deep time to the recent” – Ecological Society of America, Baltimore
  15. Brian J. Enquist and 22 others including **McGill, Brian** (2015) – “The macroecology of botanical diversity: History, new insights and the central informatics barriers” – Ecological Society of America, Baltimore
  16. Benoit Parmentier, **Brian McGill** and 9 others (2015) “Comparison of methods for the production of high resolution global daily climate layers for species modeling” – Ecological Society of America, Baltimore
  17. Maria Dornelas, Nicholas Gotelli, Anne E. Magurran and **Brian J. McGill**, (2015) “Disentangling biodiversity trends in the Anthropocene” – Ecological Society of America, Baltimore
  18. Anne E. Magurran, Maria Dornelas, Nicholas Gotelli, **Brian J. McGill** and Faye Moyes (2015) “Temporal turnover in marine assemblages in a rapidly changing world”– Ecological Society of America, Baltimore
  19. Kathryn Miller, Brian Mitchell and **Brian McGill** (2015) – “Using the Forest Service Climate Change Tree Atlas and National Land Cover Data to predict changes in forest composition in Northeastern National Parks” – Ecological Society of America, Baltimore

20. **Brian J. McGill** (2015) – “Why scaling up is harder than you think” – Ecological Society of America, Baltimore
21. **Brian J. McGill** (2015) – “Solving informatics challenges to advance plant ecology: A vision for the next 100 years” – Ecological Society of America, Baltimore
22. **Brian J. McGill** (2014) – “Variation in population dynamics across a species range - good bet hedging populations have highest average abundance” – Ecological Society of America, Sacramento, CA
23. Morueta-Holmes, Naia; Sandel, Brody; **McGill, Brian J** and 9 others (2014) – “Geographic variation in the factors controlling plant species ranges across the New World” – Ecological Society of America, Sacramento, CA
24. Messier, Julie; **McGill, Brian**, Enquist, Brian; Lechowicz, Martin “How do leaf traits differ in their patterns of variation across scales?” (2014) – Ecological Society of America, Sacramento, CA
25. McGill, B (2013) – The Gause-Liebig law - a new biogeographic law?. International Biogeography Society, Montreal
26. Parmentier, **B.**, **McGill, B.**, Regetz, J., Wilson, A. M., Jetz, W., Guralnick, R., Schildhauer, M., et al. (2013). Climate Interpolation of daily maximum temperature: improvements for the production of climate datasets. In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
27. Wilson, A. M., Parmentier, **B.**, **McGill, B.**, Guralnick, R., & Jetz, W. (2013). Incorporating satellite derived cloud climatologies to improve high resolution interpolation of daily precipitation. In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
28. The commonness and distribution of rarity: Quantifying the botanical diversity of all plant species in the Americas - Brian J. Enquist, Brad Boyle, John C. Donoghue II, Barbara Thiers, Peter Jorgensen, **Brian J. McGill**, Jens-Christian Svenning, Richard Condit, Naia Morueta-Holme, Lindsey L. Sloat, Robert Peet and The BIEN Working Group 2013 In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
29. Assembly of plant communities in climate space - Benjamin Blonder, David Nogués-Bravo, Carsten Rahbek , Brian J. Enquist, Brad Boyle, John Donoghue, Richard Condit, Robert K Peet, Steven Dolins, Mark Schildhauer, Barbara Theirs, **Brian McGill**, Peter Jorgenson, Martha Narro, Jim Regetz, Cyrille Violle, Irena Simova, Lindsey Sloat, Bill Piel, Nathan Kraft, Jens-Christian Svenning, Naia Morueta-Holme, Nick Spensor, Susan Wiser, Jeff Ott, Barbara Dobrin, Sandy Andelman, and Kristine Engemann Jensen 2013 In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
30. Global species richness patterns and their drivers among the order Anseriformes Lars Dalby, **Brian J. McGill** Anthony David Fox and Jens-Christian Svenning 2013 In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
31. Quantifying the fundamental unit of biogeography: Assessing different methods to measure geographic range size and why it matters John C Donoghue IINaia Moreta-

- Home Brad Boyle Lindsey L. Sloat Brian J. Enquist, **Brian J. McGill** Jens-Christian Svenning and The BIEN Working Group 2013 In 6th International Conference, Meeting of the International Biogeography Society. Miami, FL: International Biogeography Society.
32. Donoghue, JC II, N Morueta-Holme B Boyle LL Sloat BJ Enquist, **BJ McGill**, JC Svenning and R Condit Quantifying the fundamental unit of biogeography Assessing different methods to measure geographic range size and why it matters. 2012 Portland, OR Ecological Society of America
  33. Enquist, BJ, B Boyle, JC Donoghue II B Thiers, P Jorgensen, **BJ McGill**, JC Svenning R Condit, N Morueta-Holme, LL Sloat and T BIEN Working Group The commonness and distribution of rarity: Quantifying the botanical diversity of all plant species in the Americas. 2012 Portland, OR Ecological Society of America
  34. Morueta-Holme, N, BJ Enquist, **BJ McGill** and JC Svenning Patterns and processes behind the range size distributions of the New World plants. 2012 Portland, OR Ecological Society of America
  35. "Liebig's law meets species ranges - a new species distribution model" – August 2011 – Ecological Society of America, Austin
  36. "Is climate change an example of a coupled natural human system?" – Feb 2011 – Sustainability Solutions Initiative
  37. "New perspectives on species abundance distributions and diversity metrics" – August 2010 – Ecological Society of America, Pittsburgh
  38. "The biology of climate change? The animal/plant/climate nexus" - Feb 2010 – School of Natural Resources & Environment Noon Seminar, University Arizona
  39. "A unified theory of unified theories of biodiversity" - August 2009 - Ecological Society of America, Albuquerque
  40. "Testing niche models" - August 2008 - Ecological Society of America, Milwaukee
  41. "What causes species ranges?" - August 2007 - Ecological Society of America, San Jose, CA
  42. "Population dynamics across space – towards mechanism for species ranges" - August 2005 - Ecological Society of America, Montreal
  43. "A 'new' paradigm for community ecology: building from functional ecology" - August 2004 - Ecological Society of America, Portland (organizer of symposium of same title)
  44. "The energetic equivalence rule revisited" – July 2004 – Poster at Gordon Conference on Metabolic Ecology
  45. "Spatial processes in macroecology" – January 2003 - Poster at International Biogeography Society
  46. "Spatial processes for macroecological patterns" - August 2002 – Presentation at Ecological Society of America
  47. "Spatial processes in macroecology" - April 2002 - Poster at British Ecological Society's Macroecology Symposium
  48. "A mathematical model of mutualism coevolution and population dynamics" - November 1998 – Presentation at American Mathematical Society Western region meeting

49. "Continuous Game Theory aka Adaptive Dynamics a review of models and biology" - Sep 23, 30, Oct 7 1998- Presentation at Dynamics of Interacting populations seminar at U of A
50. "Mutualism: A population dynamics and coevolution model" - August 1998 – Presentation at Ecological Society of America annual conference

### **Teaching experience**

#### **Awards**

- Student-nominated for UA College “A+ Advisor” award (2010)
- Both college & university-wide teaching awards as a Teaching Assistant (2003)

#### **Courses Taught at University of Maine:**

- BIO 687 – Professionalism in Biology (12 students)(Fall 2011)
- EES 590 – Readings in Sustainability Science (12 students)(Fall 2011)
- EES 597 – Boundary Spanning for Sustainability Solutions (January 2012)
- BIO 597 – 007 – Advanced Environmental Statistics (15-30 students/class)(Spring 2011, Fall 2012, Fall 2014, Fall 2016, Fall 2018)
- BIO 597 – Large Scale Ecology Graduate Seminar (~10 students) (Fall 2012)
- BIO 597 – Ecology then and now (9 students) (Fall 2013)
- BIO 525 – Community Ecology (10 students) (Fall 2014, Fall 2016, Fall 2019)
- EES 597 – EcoEvo Lunch Seminar (sometimes formal instructor, always leadership role Fall 2011-present)
- BIO 205 – Natural History of Maine (40 students) (Fall 2015)

#### **Courses Taught at Arizona:**

- RNR 614 – Advanced Biometry for Environmental Research graduate lecture/discussion/lab (15 students) (Fall 2009)
- RNR 316 – Natural Resource Ecology undergraduate course (70 students) (Fall 2009)
- RNR 696A – Large scale ecology graduate seminar (5 students) (Spring 2009)

#### **Courses Taught at McGill:**

- Biology 310 – Large-scale ecology ~70 students (Winter 2007, 2008) – 100% (covers landscape ecology, macroecology, paleoecology, plant-climate interface, global warming and other forms of global change from a scientific perspective)
- Biology 331 – Ecology and Behaviour Field Course ~15 students (Fall 2005, Fall 2006) – 25% (one of four professors teaching field methods and supervising independent research projects)
- Biology 111 – Introductory Organismal Biology ~600 students (Fall 2007) – 40% and course coordinator). I have led a successful grant application (\$20,000) to bring the use of “clicker” technology into this course in connection with a redesign of the lectures to lead to a more interactive, stimulating and productive learning experience for the students of this large class.
- Biology 583 – Advanced Biometry ~25 students (Winter 2008) – 100% (covers a wide variety of statistical tools including generalized linear models, modern

regression, experimental design, and spatial and temporal statistics in a lecture and lab format)

**Courses Taught Previously:**

Fisheries and Wildlife 581 - Quantitative Methods in Ecology at Michigan State (Fall 2004) Provide a graduate-level introduction to statistics, including philosophy of inference, the role of judgment in applying statistics and topics such as advanced experimental design and ANOVA, modern regression, Bayesian analysis, phylogenetic analysis, bootstrapping, multivariate statistics and spatial and temporal statistics

**Courses TA'd**

Awarded “Outstanding teaching assistant” by the College of Science and “Outstanding teaching assistant” by the Graduate and Professional Student Association (university wide) in 2003

Ecology 302 – Ecology for majors at University of Arizona (1999, 2002). Ran weekly lab sessions (mostly field experiments but also computer labs). In 2002 I was head TA responsible for training other TAs. Developed a new field lab on variable recruitment in saguaros and developed two handouts on “The Sonoran Desert” and “Guide and simple key to plants of the Sonoran Desert”. All three are still in use. Gave six lectures to class of 130 for professor who was ill.

Ecology 335 – Evolution for majors at University of Arizona (2000, 2003). Ran sections that discussed papers every week. Worked with professor to implement interactive methods in lecture. Served as TA for the honors section 2003.

### Student supervision

	Student	Years	Project
Honors Undergraduate	Etienne Low-Decarie	2006-2007	CO <sub>2</sub> uptake of green roofs
	Alexandra Perry	2014-2015	Impacts on functional trait distributions by an invasive plant
	Dana Wright	2011-2012	Acoustic detection of whales
Undergraduate Independent Study	Ilya Hekimi	Winter 2008	Mathematics in ecology
	Dana Wright	2012	Mathematical ecology
Undergraduate technicians	Kate Robinson Dana Artz Erika Wilson	Winter 2007	Data entry of classic species abundance data
	Nick Fishbane	2007-2008	Programming and analysis of multiple peaks in species abundance data using Expectation Maximization
	Hanah James, Kaven Namdaran	2008	Data entry of ant field notes (with Ehab Abouief)
	Leah Dale, Nichole Engelman, Tyler Green, Malissa Hubbard	2010	Software documentation, book compilation, collection and entry of species traits
	Alexandra Perry	2012-2013	Data entry of bird life history traits
MSc Supervisor	Julie Messier	Jan 2007- Dec 2008	Components of variance in functional traits of tropical trees (NEO student)
	Sergio Estrada	Jan 2008- Oct 2010	Bat community structure (NEO student)
	Dominic Chambers (co-supervisor with Sylvie De Blois)	Sep 2007- 2009	Prediction of effect of climate change on trees in Quebec
	John Donoghue	2009-2015	Biogeography of plants
	Jenny Shrum	Sep 2011-	Effects of climate change on organisms/sustainability
	George Cooper	Sep 2011- (did not finish)	Biologically relevant climate metrics
PhD Supervisor	Richard Feldman	Aug 2006- Aug 2011	Community mechanisms of species ranges of hummingbirds
	Peter White	May 2006- Aug 2011	The interaction between disturbance and biogeography of forests in the Monterege and Alberta

	Julie Messier	2009-2015	Role of traits of tropical trees in structuring communities
	Matthew Vavrek (Co-supervisor, completed work with other supervisor)	2009-Jan 2011	Paleomacroecology: Large Scale Patterns in Species Diversity through the Fossil Record
	Venice Bayrd	Sep 2013 - present	Plants on elevational gradients
	Adrienne Lepold	April 2014-2017	Migratory birds on offshore islands
	Trevor Peterson	Sep 2014-	Bat migrations over the Gulf of Maine
	Kate Miller	Sep 2014-April 2018	Long-term trends in forest plants
	Jessica Haghkerdar	2015-2017 supervisor 2017-Co-supervisor with Maria Dornelas in St Andrews)	
	Bailey McLaughlin	2019-present	Climate change and plants (details TBD)
Postdoc	Volker Bahn	2005-2008	Habitat models, species ranges
	Christine Lamana	2012-2014	Effects of Climate Change on Maine organisms
	Benoit Parmentier	2012-2016	(co-supervised with NCEAS staff) Interpolating global climate layers
	Sarah Supp	2014-2017	NSF Bioinformatics Postdoc, macroecology of global change
	Xiao Xiao	2015-2017	Species diversity – measurement and spatial patterns
Visiting	Lars Dalby (visiting PhD Student from Denmark)	2012	Niche modelling of ducks
	Sara Mortara (visiting PhD student from Brazil)	2014-2015	Species abundance distributions and traits of ferns along an elevational gradient
	Annia Streher (visiting PhD student from Brazil)	2016, 2017	Plant traits on environmental gradients and hyperspectral sensing

Honors Undergraduate Committee Member: UMaine (David Bridges 2014, Marie Ring 2018 , Anthony Pawlicki 2017)

MSc Committee member: McGill (Laura Plourde, Marie Pierre-Prarie, Sophia Akl, Stefanie Kulhane, Kathleen Church, Jay Ploss), Arizona (Ambre Chaudoin, Justin Mapula), Maine (Daniel Kary, Shannon Chapin, Ben Burpee, Jessica Haghkerdar, Sean Rune, Brogan Tooley)

PhD Committee member: McGill (Ayez Hadar, Jason Samson, Tarik Gouhier), Arizona (James Stegen, Catherine Hulshof, Mary Jane Epps, Virginia Fitzpatrick, Tyson Swetnam, Benjamin Blonder, Lindsey Sloat, Galen Holt), Maine (Kristin Ditzler, Heather Arnette, Maureen Correll, Kate Ruskin, Luke Groff, Corianne Tatariw, Evan Adams, Brian Rollek, Ben Selliger, Amy Kireta, Meaghan Conway, Jeff Martin, Jack McLachlan, Sonja Birthisel, Olivia Choi, Allison Brehm, Vaclava Hazukova, Alessandro Mereghetti)

MSc Thesis reader : Pradeep Pillai, Genevieve Smith, Filip Petrovic, Stacey Jarema, Tim Holland

PhD Qualifying external member: Maria del Carmen Ruiz-Jaen, Sarah Overington

PhD Defense external member: Christian Marks, Tyler Smith, Henri Valles

PhD External Reader: Maria Dornelas (James Cook University), Atila Kilmar (U of Ottawa), Peter Wilson (Macquarie University)

PhD Defense ProDean: Sathesh Bhat (Biochemistry)

### ***Blogging***

I am one of three contributors to the blog Dynamic Ecology which started in 2011. This blog is by far the most widely read blog in academic ecology. We average >60,000 reads per month. A strong individual blog post will average 2,000 reads. The top 30 blog posts written by myself follows (statistics as of November 25, 2019)

1. The 5 pivotal paragraphs in a paper	71,033
2. Is it a fixed or random effect?	47,700
3. Surviving your comprehensive exams	22,367
4. William Shockley on what makes a person who publishes a lot of papers (and the superstar researcher system)	20,843
5. Tips for negotiating salary and startup for newly-hired tenure-track faculty	20,301
6. Statistical machismo?	20,152
7. Why AIC appeals to ecologist's lowest instincts	19,611
8. Ecologists need to do a better job of prediction – part I – the insidious evils of ANOVA	14,551
9. Why OLS estimator is an unbiased estimator for GLS	14,075
10. Ten commandments for good data management	13,202
11. Some well-known tricks for clear writing	11,799
12. Is using detection probabilities a case of statistical machismo?	11,600
13. Did North America really lose 3 billion birds? What does it mean?	9,721
14. Why advanced machine learning methods badly overfit niche models – is this statistical machismo?	9,380
15. How to write a great journal article – act like a fiction author	9,253
16. In praise of exploratory statistics	8,335

17. The secret recipe for successful working group meetings?	7,717
18. R isn't just R anymore	7,531
19. Detection probabilities, statistical machismo, and estimator theory	7,358
20. What math should ecologists teach	6,188
21. Serial bullies: an academic failing and the need for crowd-sourced truth-telling	5,374
22. Steering the trait bandwagon	5,220
23. Follow the money – what really matters when choosing a journal	5,074
24. How many terms should you have in your model before it becomes statistical machismo?	4,744
25. The one true route to good science is ...	4,696
26. Biodiversity and pizza – an extended analogy leading to a call for a more multidimensional treatment of nature	4,197
27. Why ecology is hard (and fun) – multicausality	4,137
28. Ecologists need to do a better job of prediction – Part IV – quantifying prediction quality	3,929
29. #ESA100 – big concepts and ideas in ecology for the last 100 years	3,868
30. Mistakes happen in science	3,867

### **Outreach**

2017 Public talk at Monte Verde Research institute on human change, how it compares to the paleo record and what we can expect in the future

2017 Met 6 times with area middle schools talking about climate change and actions they could take

2017 Gave “sermon” to local church on climate change

2017 Oct-2018 Sep ) Six meetings with Maine Department of Marine Resources, university internal meetings, and external contractors towards providing over-the-internet Decision Support System capacity on rainfall data and its impact on beach closures

2018 September - organized and led ORONO CORE (alterative high school) tour of the Climate Change Institute

2018 October - gave talks to two undergraduate classes at other schools (University of Cincinnati and Bard College) on human-caused global change, how it compares to the paleo record and what we can expect in the future

2018 November – spoke with reporter and was quoted in article for National Geographic online about difficulty in getting accurate data on trends of biodiversity (<https://www.nationalgeographic.com/animals/2018/11/animal-decline-living-planet-report-conservation-news/>)

2019 April – Commentator and discussion leader for “Seeds of Time” film in the Human Dimensions of Climate Change Film Series at UMaine (47 attendees)

2019 April – Spoke about climate change science and mitigation to two groups of middle school students (Old Town Leonard Middle School)

2019 Oct – Spoke with NY Times, BBC, CBC (Canadian Broadcasting <https://www.cbc.ca/news/technology/audubon-climate-report-1.5316210>) and Undark about two widely publicized reports on human impacts on birds

## **Service and other contributions**

### **Research community**

Editor in Chief *Global Ecology and Biogeography* (commencing October 2015)

Associate Editor: *Frontiers in Ecology and Environment* (2007-2017), *American Naturalist* (2009-2014), *Global Ecology and Biogeography* (2006-2013)

Awards committees: member or chair of awards committees for prominent junior or senior scientist awards at two professional societies (various years)

Ad hoc Editor: *Evolutionary Ecology Research*

Reviewer (over 400 in total, averaging 40+/year not including papers where I was editor, until I became EiC, now probably average 15-20/year) for: *American Journal of Botany*, *American Naturalist*, *Annals of Botany*, *Basic and Applied Ecology*, *BMC Ecology*, *Condor*, *Diversity and Distributions*, *Ecography*, *Ecology*, *Ecology Letters*, *Global Change Biology*, *Global Ecology & Biogeography*, *Journal of Biogeography*, *Journal of Ecology*, *Journal of Animal Ecology*, *Journal of Theoretical Biology*, *Landscape Ecology*, *Marine Ecology Progress Series*, *Methods in Ecology*, *Nature*, *Oecologia*, *Oikos*, *Plant Ecology*, *Proceedings of the National Academy of Science*, *Proceedings of the Royal Society of London B*, *Science*, *Proceedings Interface*, *Public Library of Science Biology*, *Science*, *Theoretical Population Biology*, *Trends in Ecology & Evolution*

Grant review panel: NASA Graduate Fellowships, NASA Biodiversity

Grant proposal reviewer: National Science Foundation (multiple), Alberta Ingenuity Fund, NZ Marsden Fund, University of Siena Research Plan, Binational Science Foundation (Israel/US), Veni programme (Innovational Research Incentive Scheme) of the Netherlands, CESAB (French NCEAS)

Applied reviews: National Park Service Long Term Monitoring Protocol for Rare Communities in Acadia National Park

Co-organizer of 3 symposia at Ecological Society of America (see above for details).

### **University/Faculty**

Rising Tide Advocate (group of male faculty and staff at UMaine allied with the Rising Tide Center for Gender Equity who are working to reduce gender bias across campus)

Member of UofA campus-wide search committee for tenure-track position to lead iPlant

Member of UofA search committee for interdepartmental bioinformatics position

Participant in two McGill University Faculty of Science “Soup or Science” presentations to undergraduates

Member of group at McGill launching the university wide “Panama Consortium” to encourage more graduate students from Central America to study

### **Departmental**

Chair SBE Peer Committee (2019-20)

Member of SBE Advisory Committee (2015-2016)

Member of SBE Peer Committee (2013-present)

Member of SBE Vector Biologist search committee (2015)

Member SBE Plant Physiology Faculty Search Committee (2016-17)

Member SBE Plant Evolution Faculty Search Committee (2018)

Member SBE Forest Entomology Faculty Search Committee (2019)  
 Chair of Sustainability Solutions Initiative's Research Council (2011-2014)  
 Member of Sustainability Solutions Initiative Steering Committee (2011-2014)  
 Member of SBE Graduate Committee (2011-2013, 2018)  
 Member of UM SBE Website/PR Committee (2010-2011)  
 Led UofA SNRE effort to develop new Global Change Management concentration  
 Member of the UofA SNRE Curriculum committee (2009-2010)  
 Member of the UofA SNRE Pheno-climatologist Position Search committee (2009-2010)  
 Member of the UofA SNR Academic Program Review (Self-study) committee (2008)  
 Member of the UofA SNR Information Technology Committee (2009-2010)  
 Member of the McGill Dept of Biology Graduate Training Committee (2007-2009)  
 Led a discussion and overhaul of qualifying exam process within McGill Department of  
 Biology CEEB subgroup resulting in a document stating expectations clearly  
 Served as a statistical or informatic consultant for faculty and students (when not on their  
 committees)  
 Organized the "Dynamics of Interacting Populations" seminar for the University of Arizona  
 Math and EEB departments Spring 2000, Spring 2001  
 University of Arizona EEB Graduate student association co-president 2000-2001  
 University of Arizona EEB - Taught a semester long seminar for fellow graduate students -  
 "Mathematical tools for ecologists"

Memberships: Ecological Society of America, American Society of Naturalists,  
 International Biogeography Society

**Previous Career**

This career is where I learned many of the tools I use in my ecoinformatics approach. In the last 5 years I led a team to create a database that was optimally designed for analysis of data (rather than for storing individual transactions). I also worked with telecommunications companies to develop statistical methods for analyzing customers. Prior to that I did a lot of computer simulation work.

- 1992-1997      Product Manager then Executive Director of a business unit. In this role, I Kenan Systems designed a new product, led development, and led a sales and marketing effort which brought in \$2 million in its first year. Prior to this, I was head designer and development manager for a product used to analyze business data, supervising a team of 20. Received Patent #6115714.
- 1988-1992      Designed discrete event simulations to analyze logistics questions for the US Kenan Systems Postal Service. Project manager of \$1-\$2 million per year projects. One project I managed was one of three components to collectively receive runner up for the Edelman award, the highest recognition for applied work by the operations research professional society (ORSA/TIMS)
- 1982-1987      Worked part time implementing discrete event simulations of heating, cooling Volt EMS and other energy consumption dynamics in residential and commercial buildings

### ***Major volunteer experience***

I have been an elected local official serving on the school board for Orono Maine since 2015 (reelected in 2018). I have been the chair of this five-person board since 2016. The school board has taxing authority and controls a budget of approximately \$15,000,000. The board also has hire/fire authority over the superintendent and principals and supervises the superintendent. The board, and I especially as board chair, are regularly involved in personnel issues for the 100 person staff and crisis management when the need arises. The board establishes strategic direction, sets annual district goals, and writes policies. I regularly interface with diverse stakeholders including teachers, administrators, parents, taxpayers, state and town government, and the press. Most recently, I and the superintendent have successfully led the board, staff and citizens to scope and approve a \$16.5 million bond to substantially update our facilities.