

Curriculum Vitae
L. Lacey Knowles

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POSITIONS

2015-present, Robert B. Payne Collegiate Professor, Department of Ecology and Evolutionary Biology, Curator of Insects, Museum of Zoology, University of Michigan
2012-2015, Professor, Department of Ecology and Evolutionary Biology, Curator of Insects, Museum of Zoology, University of Michigan
2008-2012, Associate Professor, Department of Ecology and Evolutionary Biology, Curator of Insects, Museum of Zoology, University of Michigan
2003-2008, Assistant Professor, Department of Ecology and Evolutionary Biology, Curator of Insects, Museum of Zoology, University of Michigan

ACADEMIC APPOINTMENTS:

Member, Center for statistical Genetics, University of Michigan
NIH Training Program in Genome Sciences, University of Michigan

EDUCATION

2001-2002 NIH Postdoctoral Fellowship (PERT: Postdoctoral Excellence in Research and Teaching) awarded through the Center for Insect Science at the University of Arizona
1999-2001 Postdoctoral Fellowship from the National Science Foundation Research Training Group in the Analysis of Biological Diversification at the University of Arizona
1999 Ph.D., Ecology and Evolution, State University of New York at Stony Brook
Dissertation title: Genealogical portraits of Pleistocene speciation and diversity patterns in montane grasshoppers
1993 M.S., Zoology, University of South Florida. Thesis title: Effects of habitat structure on community assemblages of epifaunal macroinvertebrates in seagrass systems.
1989 B.S., *cum laude* with honors in Marine Biology, University of North Carolina, Wilmington

RESEARCH INTERESTS

Speciation and processes that promote divergence
Phylogenomics and statistical phylogeography
Evolutionary consequences of climate change

HONORS AND AWARDS

Collegiate Professorship, College of literature, Science, and the Arts, University of Michigan, 2015
Glaser Distinguished Lectureship at Florida International University, Department of Biological Sciences, 2012.
Visiting Miller Research Professorship Award, University of California, Berkeley, 2009.
Visiting Scholar to the National Evolutionary Synthesis Center (NESCent) at Duke University, 2009 (declined)

FUNDING

Pending NSF Proposals

PI: Knowles: The Geography of Genomes under Climate Change.

PI: Sukumaran, Co-PI Knowles: Phylogeographic Information Database.

PI: Knowles, Co-PIs Papadopoulou & Sukumaran: Preliminary Proposal: A Quaternary-sensitive model of island biogeography: testing hypotheses through model selection in endemic insects.

PI: Sukumaran, Co-PI Knowles: Preliminary Proposal: Development of a phylogenetic method to test the incumbent species advantage concept.

Funded Grants

National Science Foundation, DEB 17- recommended for award (Co-PIs: Moritz, Sukumaran): A Bayesian statistical approach to determine whether genetic data delimits species versus populations. 2017-2019; \$500,000.

Science without Borders Program, Ciências sem Fronteiras, CNPq, Brazil (PI: Teresa Avila Pires; R\$160,924.68). The grant will support my travel and work for 3 months in Brazil, as well as 2 Ph.D. students and 1 postdoc that will work in my lab for 1 year each, in addition to molecular expenses for a phylogeography project on Amazonian lizards, 2014-2017.

National Science Foundation, DEB 11-45989, (Economio, PI, Knowles, co-PI) Evolving hyperdiversity in phenotypic, ecological, and geographic networks: testing the taxon cycle and alternatives in Indo-Pacific Pheidole, 2012-2014; \$378,622.

National Science Foundation, DEB 11-18815, Identifying the utility of species-tree approaches for deep radiations, 2011-2013; \$330,588.

National Science Foundation, DEB 09-18218, (co-PI, Laura Kubatko) Estimating species trees with population genetic approaches: working towards a new paradigm for 21st century phylogenetics, \$544,458 (\$356,083 to Knowles)

National Science Foundation, DEB-09-01930, Workshop on Estimating Species Trees: Practical and Theoretical Aspects of a New Paradigm in Molecular Systematics, 2009; \$11,400.

National Science Foundation, DEB-07-15487, Population genetics of species delimitation: methodology and application of a unified approach to inferring species boundaries, 2007-2010; \$314,000.

National Science Foundation, DEB-04-47224, Testing speciation hypotheses with genomic analyses in montane grasshoppers, 2005-2008; \$514,950.

NSF Dissertation Improvement Grants

National Science Foundation, DEB-16-01260, Dissertation Research: Can the degree of mimicry predict levels of genetic structure among populations? A test using mimetic ground beetles, 2016-2018; \$20,150

National Science Foundation, DEB-16-01389, Dissertation Research: Speciation, niche divergence, and character displacement at multiple scales in *Laiopogon* robber flies (Diptera: Asilidae), 2016-2018; \$20,040

National Science Foundation, DEB-15-01462, Dissertation Research: The species versus subspecies conundrum: quantitative assessment from integrating multiple data types under a single Bayesian framework in *Hercules* beetles, 2015-2017; \$20,205

National Science Foundation, DEB-15-01301, Dissertation Research: Riverscape genetics: testing the role of river properties with population-genetic models in Neotropical freshwater fishes, 2015-2017; \$20,179

National Science Foundation, DEB-13-09072, Dissertation Research: Tests of parallel divergence processes in montane plants: links between population differentiation and species diversity patterns, 2013-2015; \$20,215

National Science Foundation, DEB-12-10359, Dissertation Research: Adaptive divergence in *Anopheles gambiae* (with gene flow): facilitation via chromosomal inversions, 2012-2014; \$15,000

National Science Foundation, DEB-07-09908, Dissertation Research: A unique approach for understanding the maintenance of genetic variation for fitness, 2007-2009; \$12,000

National Science Foundation, DEB-06-608147, Dissertation Research: An integrative approach to the conservation of Panamanian golden frogs, Panamanian golden frogs, 2006-2008; \$12,000

NSF REU-Supplements

National Science Foundation, REU- Supplement for DEB 11-45989, (Economo, PI, Knowles, co-PI) Evolving hyperdiversity in phenotypic, ecological, and geographic networks: testing the taxon cycle and alternatives in Indo-Pacific Pheidole, 2012-2013; \$6,000

National Science Foundation, REU- Supplement for DEB 11-18815, Identifying the utility of species-tree approaches for deep radiations, 2012-2013; \$6,000

National Science Foundation, REU- Supplement for DEB-09-23762, Population genetics of species delimitation: methodology and application of a unified approach to inferring species boundaries, 2010-2011; \$6,000

National Science Foundation, REU- Supplement for DEB-09-23762, Population genetics of species delimitation: methodology and application of a unified approach to inferring species boundaries, 2009-2010; \$12,000

National Science Foundation, REU- Supplement for DEB-08-22612, Population genetics of species delimitation: methodology and application of a unified approach to inferring species boundaries, 2008-2009; \$6,000

National Science Foundation, REU- Supplement for DEB-08-22608, Testing speciation hypotheses with genomic analyses in montane grasshoppers, 2008-2009; \$6,000

National Science Foundation, REU- Supplement for DEB-07-23799, Testing speciation hypotheses with genomic analyses in montane grasshoppers, 2007-2008; \$6,000

National Science Foundation, REU- Supplement for DEB-06-20058, Testing speciation hypotheses with genomic analyses in montane grasshoppers, 2006-2007; \$6,000

National Science Foundation, REU- Supplement for DEB-05-33746, Testing speciation hypotheses with genomic analyses in montane grasshoppers, 2005-2006; \$6,000

Office of the Vice President for Research Faculty Grant, University of Michigan, 2010, support for project entitled “Tapping the Power of Next-Generation Sequencing Technologies to Identify Community-Level Responses to Past Climate Change”, \$15,000.

Office of the Vice President for Research, University of Michigan, 2008, support for workshop on Estimating Species Trees, \$4,600.

Elizabeth Caroline Crosby Fund, NSF ADVANCE Project, University of Michigan, 2004, support for project entitled ‘ Tests of the role of sexual selection in the rapid diversification of montane grasshoppers’, \$16,815.

Funds for course improvements, University of Michigan, 2004, support for digital camera system with real-time imaging for in class demonstrations, Insect Biology, EEB 442, \$12,099.

Office of the Vice President for Research Faculty Grant, University of Michigan, 2003, support for project entitled "Linking patterns of genetic variation to mechanisms of speciation", \$10,000.

Rackham Graduate School Spring/Summer Fellowships, University of Michigan, 2003, support for graduate student for project entitled "Insect genitalia: generators of diversity?"; \$4000.

Dean's Discretionary Fund, University of Michigan, 2003, support for graduate student to work on insect teaching collection for the Insect Biology course, EEB 442; \$4000.

Ginzberg Community Learning and Service Center Grant, University of Michigan, 2003, develop service-learning component of new Insect Biology course, EEB 442; entitled 'Community Partnerships in Biodiversity: Strengthening the Connection between People and the Natural World' \$7000

NIH Postdoctoral Fellowship (PERT: Postdoctoral Excellence in Research and Teaching) awarded through the Center for Insect Science at the University of Arizona, 2001.

Postdoctoral Fellowship from the National Science Foundation Research Training Group in the Analysis of Biological Diversification at the University of Arizona, 1999.

Doctoral Dissertation Improvement Grant, National Science Foundation (DEB 9801284), 1998.

Sokal Travel Grant, for travel expenses to meeting to present graduate research, State University of New York at Stony Brook, 1996.

Orthopterist Society Research Award, research grant for graduate students, for pilot study on phylogenetic relationships of *Melanoplus* grasshoppers, 1996.

Sigma Xi Grant in Aid of Research, research grant for graduate students, for pilot study on association of speciation with Pleistocene glacial cycles in *Melanoplus* grasshoppers, 1995.

PUBLICATIONS (graduate and undergraduate co-authors are in italics; postdocs are underlined)

2017

Papadopoulou A, Knowles LL (2017) Linking micro- and macroevolutionary perspectives to evaluate the role of Quaternary sea-level oscillations in island diversification. *Evolution*, in review.

Huang J-P, Knowles LL (2017) Tests of divergence across multiple levels of biodiversity in *Xylotrupes* beetles: impact of oceanic and forest barriers on diversification dynamics across the Indo-Australian Archipelago. *J. Biogeogr.*, in review.

Thomaz AT, *Malabarba LR*, Knowles LL (2017). Genomic signatures of paleodrainages in a freshwater fish along the southeastern coast Brazil: the effects of past riverine properties. *Heredity*, in review.

Sturaro, MJ, Avila-Pires TCS, Rodrigues MT, Knowles LL (2017) Integrative taxonomy of the lizards *Cercosaura ocellata* species complex (Reptilia: Gymnophthalmidae) based on morphological and genomic data. *Zool. J. Linnean Soc.*, in review.

Emel S, Olson D, Knowles LL, Storfer A (2017) Comparative landscape genetic analysis of two parapatric torrent salamanders, *Rhyacotriton kezeri* and *R. variegatus*. *Heredity*, in revision.

He Q, Knowles LL (2017) Rapid adaptation with gene flow via a reservoir of chromosomal inversion variation? *J. Evol. Biol.*, in review.

Sukumaran J, Knowles LL (2017) Species vs. structure delimitation under the multispecies coalescent. *Proc. Natl. Academy Sci. USA*, in press.

Knowles LL, Massatti R (2017) Distributional shifts – not geographic isolation – as a probable driver of montane species divergence. *Ecography*, in press.

2016

Knowles LL, Chappell TM, Marquez EJ, Cohn TJ (2016) Tests of the role of sexual selection in genitalic divergence with multiple hybrid clines. *Journal of Orthoptera Research* 25:75-82.

Muñoz-Ramírez, CP, Bitton P-P, Doucet SM, Knowles LL (2016) Mimics here and there, but not everywhere: Müllerian mimicry in *Ceroglossus* ground beetles? *Biol. Letters* 12: 20160429.

Bemmels JB, Title PO, Ortego J, Knowles LL (2016) Tests of species-specific models reveal the importance of drought in postglacial range shifts of a Mediterranean-climate tree: insights from iDDC modelling and ABC model selection *Mol. Ecol.* 25:4889-4906.

Massatti R, Knowles LL (2016) Contrasting support for alternative models of genomic variation based on microhabitat preference: species-specific effects of climate change in alpine sedges. *Mol. Ecol.* 25:3974-3986.

Papadopoulou A, Knowles LL (2016) Towards a paradigm shift in comparative phylogeography driven by trait-based hypotheses. *Proc. Natl. Academy Sci. USA* 113:8018-8024.

Wachter GA*, Papadopoulou A*, Muster C, Arthofer W, Knowles LL, Steiner FM, Schlick-Steiner BC (2016) Glacial refugia, recolonisation patterns, and diversification forces in Alpine-endemic *Megabunus* harvestmen. *Mol. Ecol.* 25:2904-2919.

* contributed equally to the paper

He Q, Knowles LL (2016) Identifying targets of selection in mosaic genomes with machine learning: applications in *Anopheles gambiae* for detecting sites within locally adapted chromosomal inversions. *Mol. Ecol.*, 25: 2226-2243.

Thomaz AT, Christie MR, Knowles LL (2016) The architecture of river networks can drive the evolutionary dynamics of aquatic populations. *Evolution* 70:731-739.

Massatti R, Reznicek T, Knowles LL (2016) Utilizing RADseq data for phylogenetic analysis of challenging taxonomic groups: a case-study in *Carex Sect. Racemosae* (Cyperaceae). *Am. J. Botany* 103:337-347.

Knowles LL, Massatti R, He Q, Olson LE, Lanier HC (2016) Quantifying the similarity between genes and geography across Alaska's alpine small mammals. *J. Biogeogr.* 43:1464-1476.

Huang J-P, Knowles LL (2016) The species versus subspecies conundrum: quantitative delimitation from integrating multiple data types within a single Bayesian approach in Hercules beetles. *Syst. Biol.* 65: 685-699.

Sukumaran J, Economio EP, Knowles LL (2016) Machine learning biogeographic processes from biotic patterns: a new trait-dependent dispersal and diversification model, with model-choice by simulation-trained discriminant analysis. *Syst. Biol.* 65:525-545.

Huang H, Knowles LL (2016) Unforeseen Consequences of Excluding Missing Data from Next-Generation Sequences: Simulation Study of RAD Sequences. *Syst. Biol.* 65:357-365
doi:10.1093/sysbio/syu046

2015

Thomaz AT, Malabarba LR, Bonatto SL, Knowles LL (2015). Testing the combined effects of palaeodrainages versus habitat stability on divergence in riverine systems: a study of a Neotropical fish of the Brazilian coastal Atlantic forest. *J. Biogeogr.*42: 2389-2401.

Oneal E, Knowles LL (2015). Paternity analyses in wild-caught and lab-reared Caribbean cricket females reveal the influence of mating environment on post-copulatory sexual selection. *J. Evol. Biol.* 28: 2300-2307.

Papadopoulou A, Knowles LL (2015) Species-specific responses to island connectivity cycles: refined models for testing phylogeographic concordance across a Mediterranean Pleistocene Aggregate Island complex. *Mol. Ecol.* 24:4252-4268.

Papadopoulou A, Knowles LL (2015) Genomic tests of the species-pump hypothesis: recent island connectivity cycles drive divergence in Caribbean crickets across the Virgin Islands. *Evolution* 69:1501-1517.

Economo EP, Sarnat EM, Janda M, Clouse R, Klimov PB, Fischer G, Blanchard BD, Ramirez LN, Andersen AN, Berman M, Guenard B, Lucky A, Rabeling C, Wilson EO, Knowles LL (2015) Breaking out of biogeographic modules: range expansion and taxon cycles in the hyperdiverse ant genus *Pheidole*. *J. Biogeography* 42: 2289-2301.

Lanier HC, Massatti R, He Q, Olson LE, Knowles LL (2015) Colonization from divergent ancestors: glaciation signatures on contemporary patterns of genetic variation in Collared Pikas (*Ochotona collaris*). *Mol. Ecol.* 24:3688-3705.

Christie MR, Knowles LL (2015) Habitat corridors facilitate genetic resilience irrespective of species dispersal abilities or population sizes. *Evolutionary Applications* 8(5): 454-463.
DOI: 10.1111/eva.12255

Economo EP, Klimov PB., Sarnat EM., Guénard B, Weiser MD, Lecroq B, Knowles LL (2015) Global phylogenetic structure of the hyperdiverse ant genus *Pheidole* reveals the repeated evolution of macroecological patterns. *Proceedings of the Royal Society Series B.* 282:20141416. doi:10.1098/rspb.2014.1416 (Highlighted in NSF's [News from the Field](#)).

Lanier HC, Knowles LL (2015) Applying species-tree analyses for deep phylogenetic histories: challenges and potential suggested from a survey of empirical phylogenetic studies. *Molecular Phylogenetics and Evolution* 83:191-199.

2014

Solis-Lemus C, Knowles LL, Ané C (2014) Bayesian species delimitation combining multiple genes and traits in a unified framework. *Evolution* 69:492-507.

Massatti R, Knowles LL (2014) Microhabitat differences impact phylogeographic concordance of co-distributed species: genomic evidence in montane sedges (*Carex* L.) from the Rocky Mountains. *Evolution* 68:2833-2846. doi:10.1111/evo.12491

Huang H, Tran L, Knowles LL (2014) Do Estimated and Actual Species Phylogenies Match? Evaluation of African Cichlid Radiations. *Mol. Phylog. Evol* 78:56-65.

Olave M, Solà E, Knowles LL (2014) Upstream Analyses Create Problems with DNA-based Species Delimitation. *Syst. Biol.* 63:263-271. DOI:10.1093/sysbio/syt106

Edwards DL, Knowles LL (2014) Species detection and individual assignment in species delimitation: can integrative data increase efficacy? *Proc. R. Soc. B* 20132765.

<http://dx.doi.org/10.1098/rspb.2013.2765>

Alvarado-Serrano DF, Knowles LL (2014) Environmental niche models in phylogeographic studies: recent advances and precautions. *Mol. Ecol. Resources* 14:233-248. doi: 10.1111/1755-0998.12184

2013

Lanier HC, Huang H, Knowles LL (2013) How low can you go? The effects of mutation rate on the accuracy of species-tree reconstruction. *Molecular Phylogenetics and Evolution* 70:112-119.

Alvarado-Serrano DF, Luna L, Knowles LL (2013) Localized versus generalist phenotypes in a broadly distributed tropical mammal: how is intraspecific variation distributed across disparate environments? *BMC Evol. Biol* 13:160. DOI: 10.1186/1471-2148-13-160

He Q, Edwards D, Knowles LL (2013) Integrative test of how environments from the past to the present shape the genetic structure across landscapes. *Evolution* 67:3386-3402.

*recommended by Jonathan Losos on Faculty of 1000

Hovmöller R, Kubatko LS, Knowles LL (2013) Effects of missing data on species tree estimation under the coalescent. *Molecular Phylogenetics and Evolution* 69:1057-1062.

Lanier HC, Edwards D, Knowles LL (2013) Phylogenetic structure of vertebrate communities across the Australian arid zone. *J. Biogeogr.* 40:1059-1070. doi:10.1111/jbi.12077

2012

Oneal E, Knowles LL (2012) Ecological selection as the cause and sexual differentiation as the consequence of species divergence? *Proc. R. Soc. Lond. Series B* 280:20122236.

Brown JL, Knowles LL (2012) Spatially explicit models of dynamic histories: examination of the genetic consequences of Pleistocene glaciation and recent climate change on the American Pika. *Mol. Ecol.* 21:3757-3775.

Edwards D, Keogh S, Knowles LL (2012) Effects of vicariant barriers, habitat stability, population isolation and environmental features on species divergence in the south-western Australian coastal reptile community. *Mol. Ecol.* 21:3809-3822.

Knowles LL, Lanier H, Klimov PB, He Q (2012) Full modeling versus summarizing gene-tree uncertainty: method choice and species-tree accuracy. *Molecular Phylogenetics and Evolution* 65:501-509.

Lanier HC, Knowles LL (2012) Is Recombination a problem for species-tree analyses? *Syst. Biol.* 61:691-701. DOI: 10.1093/sysbio/syr128

2011

Knowles LL, Klimov PB (2011) Estimating phylogenetic relationships despite discordant gene trees across loci: the species tree of a diverse group of feather mites (Acari: Proctophyllodidae). *Parasitology* (special issue on phylogenetics): 138:1750-1759.

Klimov PB, Knowles LL (2011) Repeated parallel evolution of minimal rRNAs revealed from detailed comparative analyses. *J. of Heredity* 102:283-293.

McCormack J, Heled J, Delaney KS, Peterson TA, Knowles LL (2011) Calibrating divergence times on species trees versus gene trees: implications for speciation history of *Aphelocoma* jays. *Evolution* 65:184-202.

2010

Carstens BC, Knowles LL (2010) Navigating the unknown: model selection in phylogeography. *Mol. Ecol.* 19:4581-4582.

Knowles LL (2010) Sampling strategies for species-tree estimation. In: *Estimating Species Trees: Practical and Theoretical Aspects* (L. L. Knowles and L. S. Kubatko, eds.), pp. 163-172. Wiley-Blackwell.

Knowles LL, Kubatko LS (2010) Estimating species trees: an introduction to concepts and models. In: *Estimating Species Trees: Practical and Theoretical Aspects* (L. L. Knowles and L. S. Kubatko, eds.), pp. 1-12. Wiley-Blackwell.

Oneal E, Otte D, Knowles LL (2010) Testing for biogeographic mechanisms promoting divergence in Caribbean crickets (genus *Amphiacusta*). *J. Biogeogr.* 37:530-540.

Knowles LL, Alvarado-Serrano DF. 2010. Exploring the population genetic consequences of the colonization process with spatio-temporally explicit models: insights from coupled ecological, demographic, and genetic models in montane grasshoppers. *Mol. Ecol.* 19:3727-3745.

McCormack JE, Zellmer AJ, Knowles LL (2010) Does niche divergence accompany allopatric divergence in *Aphelocoma* jays as predicted under ecological speciation?: insights from tests with niche models. *Evolution* 64:1231-1244.

Huang H, He Q, Kubatko LS, Knowles LL (2010) Sources of Error for Species-Tree Estimation: Impact of Mutational and Coalescent Effects on Accuracy and Implications for Choosing Among Different Methods. *Syst. Biol.* 59:573-583.

Beaumont M, Rasmus N, Robert C, Hey J, Gaggiotti O, Knowles LL, Estoup A, Panchal M, Corander J, Hickerson M, Sisson S, Fagundes N, Chikhi L, Beerli P, Vitalis R, Cornuet J-M, Huelsenbeck J, Foll M, Yang ZH, Rousset F, Balding D, Excoffier L (2010) In defense of model-based inference in phylogeography. *Mol. Ecol.* 19:436-446.

2009

Knowles LL (2009) Statistical phylogeography. *Annu. Rev. Ecol. Syst.* 40:593-612.

Knowles LL (2009) Species tree estimation: methods of phylogenetic analysis when there is incongruence across genes. *Syst. Biol.* 58:463-467.

Zellmer AJ, Knowles LL (2009) Disentangling the effects of historic versus contemporary landscape structure on population genetic divergence. *Mol. Ecol.* 18:3593-3602.

Huang H, Knowles LL (2009) What's the biological reality of the anomaly zone? *Syst. Biol.* 58:527-536.

McCormack JE, Huang H, Knowles LL (2009) Maximum-likelihood Estimates of Species Trees: how accuracy of phylogenetic inference depends upon the divergence history and sampling design. *Syst. Biol.* 58:501-508.

Kubatko L, Carstens BC, Knowles LL (2009) STEM: Species tree estimation using Maximum likelihood for gene trees under coalescence, *Bioinformatics* 25:971-973.

McCormack JE, Huang H, Knowles LL (2009) Sky islands. in R. Gillespie and D. Clague, eds. *Encyclopedia of Islands*. University of California Press, Berkeley, CA.

2008

Knowles LL (2008) Why does a method that fails continued to be used? *Evolution* 62:2713-17.

Gray DA, Huang H, Knowles LL (2008) Molecular evidence of a peripatric origin for two sympatric species of field crickets (*Gryllus rubens* and *G. texensis*) revealed from coalescent simulations and population genetic tests. *Mol. Ecol.* 17:3826-3855.

Knowles LL, Chan Y-H (2008) Resolving species phylogenies of recent evolutionary radiations. *Ann. Missouri Bot. Gard.* 95:224-231.

2007

Connallon T, Knowles LL (2007) Recombination rate and protein evolution in yeast. *BMC Evolutionary Biology*, 7:235. doi:10.1186/1471-2148-7-235.

Richards CL, Carstens BC, Knowles LL (2007) Distribution modeling and statistical phylogeography: an integrative framework for testing biogeographic hypotheses. *J. Biogeogr.* 34:1833-1845.

Marquez EJ, Knowles LL (2007) Correlated Evolution in multivariate traits: detecting codivergence across multiple dimensions. *J. Evol. Biol.* 20:2334-2348. doi:10.1111/j.1420-9101.2007.01415x

Knowles LL, Carstens BC, Keat ML (2007) Coupled Genetic and Ecological-Niche Models to Examine How Past Population Distributions Contribute to Divergence. *Current Biol.* 17:1-7.

Knowles LL, Carstens BC (2007) Delimiting species without monophyletic gene trees. *Syst. Biol.* 56:887-895.

Knowles LL, Carstens BC (2007) Estimating a geographically explicit model of population divergence. *Evolution* 61:477-493.

Richards CL, Knowles LL (2007) Tests of phenotypic and genetic concordance and their application to the conservation of Panamanian golden frogs (Anura, Bufonidae). *Mol. Ecol.* 16:3119-3133.

Klimov PB, OConnor BM, Knowles LL (2007) Museum specimens and phylogenies elucidate ecology's role in determining coevolutionary associations between chaetodactylid mites and their bee hosts. *Evolution* 61:1368-1379.

Carstens BC, Knowles LL (2007) Estimating species phylogeny from gene-tree probabilities despite incomplete lineage sorting: an example from *Melanoplus* grasshoppers. *Syst. Biol.* 56:400-411.

Carstens BC, Knowles LL (2007) Shifting distributions and speciation: species divergence during rapid climate change. *Mol. Ecol.* 16:619-627.

Oneal E, Connallon T, Knowles LL (2007) Conflict between direct and indirect benefits of female choice in desert *Drosophila*. *Biology Letters, Proc. R. Soc. Lond. B.* 3:29-32.

2006

Connallon T, Knowles LL (2006) Evidence for overdominant selection maintaining X-linked fitness variation in *Drosophila melanogaster*. *Evolution* 60:1445-1453.

Maddison WP, Knowles LL (2006) Inferring phylogeny despite incomplete lineage sorting. *Syst. Biol.* 55:21-30.

Carstens BC, Knowles LL (2006) Variable nuclear markers for *Melanoplus oregonensis* identified from the screening of a genomic library. *Mol Ecol. Notes* 6:683-685 doi:10.1111/j.1471-8286.2006.01309.x

2005

Knowles LL, Richards CL (2005) Importance of genetic drifts during Pleistocene divergence as revealed by analysis of genomic variation. *Mol. Ecol.* 14:4023-4032.

Connallon T, Knowles LL (2005) Intergenomic conflict revealed by patterns of sex-biased gene expression. *Trends in Genetics* 21:495-499.

Pfeiler E, LA Hurtado, LL Knowles, J Torre-Cosio, L Bourillon-Moreno, JF Marquez-Farias, G Montemayor-Lopez (2005) Population genetics of the swimming crab *Callinectes bellicosus* (Brachyura: Portunidae) from the eastern Pacific Ocean. *Mar. Biol.* 146:559-569. (doi:10.1007/s00227-004-1463-y).

Knowles LL, BB Hernandez, TA Markow (2005) Non-antagonistic interactions between the sexes revealed by the ecological consequences of reproductive traits. *J. Evol. Biol.* 18:156-161 (doi:10.1111/j.1420-9101.2004.00779.x)

2004

Knowles LL (2004) The burgeoning field of statistical phylogeography. *J. Evol. Biol.* 17:1-10 (doi: 10.1046/j.1420-9101.2003.0064.x).

Knowles LL, Hernandez BB, Markow TA (2004) Exploring the consequences of postmating-prezygotic interactions between the sexes. *Proc. R. Soc. Lond. Series B* 271:S357-S359 (doi: 10.1098/rsbl.2004.0192).

2002

Knowles LL, Maddison WP (2002) Statistical phylogeography. *Mol. Ecol.* 11:2623-2635.

Kurziel JP, Knowles LL (2002) The mechanisms of morph determination in the amphipod *Jassa*: implications for the evolution of alternative male phenotypes. *Proc. R. Soc. Lond. Series B.* 269:1749-1754.

2001

Knowles LL, Markow TA (2001) Sexually antagonistic coevolution of a postmating-prezygotic reproductive character in desert *Drosophila*. *Proc. Natl. Academy Sci. USA* 98:8692-8696.

Knowles LL (2001) Genealogical portraits of speciation in montane grasshoppers (genus *Melanoplus*) from the sky islands of the Rocky Mountains. *Proc. R. Soc. Lond. Series B.* 268:319-324.

Knowles LL (2001) Did the Pleistocene glaciations promote divergence? Tests of explicit refugial models in montane grasshoppers. *Mol. Ecol.* 10:691-701.

2000

Knowles LL (2000) Tests of Pleistocene speciation in montane grasshoppers from the sky islands of western North America (genus *Melanoplus*). *Evolution* 54:1337-1348.

Knowles LL, Otte D (2000) Phylogenetic analysis of montane grasshoppers from western North America (genus *Melanoplus*, Acrididae: Melanoplineae). *Annals Entom. Soc. Am.* 93:421-431

1999

Knowles LL, Futuyma DJ, Eanes WF, Rannala B (1999) Insights into speciation mode from historical demography in the phytophagous beetle *Ophraella*. *Evolution* 53:1846-1856.

Knowles LL, Coelho A, McNellis J, Greene KP, Futuyma DJ (1999) Tests of inbreeding effects on host shift potential in the phytophagous beetle *Ophraella communa*. *Evolution* 53:561-567.

Knowles LL, Bell SS (1998) The influence of habitat structure on faunal-habitat associations in a Tampa Bay seagrass system, Florida. *Bulletin of Marine Science* 62:781-894.

Meyer A, Knowles LL, Verheyen E (1995) Widespread distribution of mitochondrial haplotypes in rock-dwelling cichlid fishes from Lake Tanganyika. *Mol. Ecol.* 5:341-350.

Books:

Knowles LL, Kubatko LS, co-editors (2010) *Estimating Species Trees: Practical and Theoretical Aspects*. Wiley-Blackwell.

Reviews:

Knowles, LL (2012) Book review of: *Molecular Ecology and Evolution: the Organismal Side: Selected Writings from the Avise Laboratory*, edited by John Avise. *Quarterly Review of Biology*, 87:56.

Knowles LL (2003) Research update: Nonstochastic variation of species-level diversification rates within angiosperms. BioMedNet record 1404200381.

Knowles LL (2002) Reconstructing rapid climate change from a snail's pace. *TREE* 17:355.

Knowles LL (2001) An evolutionary slant on species-area curves. *TREE* 16:174-175.

Knowles LL (2000) Conflict begets diversity? *TREE* 15:488-489.

Knowles LL (1998) Book review of: *The Ice-Age History of Southwestern National Parks*, by S.A. Elias. *Quarterly Review of Biology* 73:67.

Knowles LL (1997) Book review of: *The Ice-Age History of National Parks in the Rocky Mountains*, by S.A. Elias. *Quarterly Review of Biology* 72:66.

PUBLISHED ABSTRACTS:

Knowles LL (2009) Tracing paths of speciation: insights from phylogeography and population genetics. *Metaleptera* 29(2):39.

Oneal E, Knowles LL (2009) Testing for selective divergence in a Caribbean cricket (genus *Amphiacusta*). *Metaleptera* 29(2):88.

EDITORIAL FEATURES OF MY RESEARCH:

Features of Sukumaran and Knowles "Multispecies coalescent delimits structure, not species", PNAS

Central Michigan University (CMU) Public Radio feature, 2-1-17

USAgNet, Michigan News, 2-2-17, Genomic Tools for Species Discovery Estimates
http://usagnet.com/state_headlines/state_story.php?tbl=MI2017&ID=114

Michigan News, 1-30-17 Genomic tools for species discovery inflate estimated of species numbers, biologists contend <http://ns.umich.edu/new/releases/24502-genomic-tools-for-species-discovery-inflate-estimates-of-species-numbers-u-michigan-biologists-contend>

Science News Magazine feature, 2-1-17

Newswise-Scinews, 1-30-17, Genomic tools for species discovery inflate estimated of species numbers, biologists contend
<http://esciencenews.com/sources/newswise.scinews/2017/01/30/genomic.tools.species.discovery.inflate.estimates.species.numbers.u.michigan.biologists.cont>

Topix, Genomic tools for species discovery inflate estimated of species numbers, biologists contend <http://www.topix.com/forum/science/ecology/TF3IL6J38C8OP61SK>

GenomeWeb.com, 1-30-17 Genomic modeling tool for species discovery overestimates biodiversity <https://www.genomeweb.com/informatics/genomic-modeling-tool-species-discovery-overestimates-biodiversity>

ScienceDaily, 1-31-17 Genomic tools for species discovery inflate estimated of species numbers, biologists contend <https://www.sciencedaily.com/releases/2017/01/170131080148.htm>

Journal cover of Biology Letters, September issue, 2016.

National Science Foundation, News from the field, 12-24-14: feature of NSF DEB 11-45989, (Economio, PI, Knowles, co-PI) Evolving hyperdiversity in phenotypic, ecological, and geographic networks: testing the taxon cycle and alternatives in Indo-Pacific Pheidole
https://www.nsf.gov/news/news_summ.jsp?cntn_id=133754

OIST New Center, 12-24-14, The ants that conquered the world. Feature Economio et al. (2015) Global phylogenetic structure of the hyperdiverse ant genus *Pheidole* reveals the repeated evolution of macroecological patterns, Proc. Royal Soc. Lond. <https://www.oist.jp/news-center/news/2014/12/24/ants-conquered-world>

Journal cover of Molecular Ecology, September issue, 2010.

Journal cover of Evolution, May issue, 2010.

Journal cover of Systematic Biology, October issue, 2009.

Features of Features of Knowles and Carstens “Delimiting species without monophyletic gene trees”, *Systematic Biology*

Science Watch, 12-8-2008, <http://sciencewatch.com/dr/fbp/2008/08decfbp/08decfbpKnow/>

www.sparticl.org/topic/biological-classification/view/interv.

ISI Essential Science Indicators. ESI Featured Special Topics, New Hot Papers, December 2008, <http://esi-topics.com/>

Sparticic Interview, <http://www.sparticl.org/topic/biological-classification/view/interview-with-professor-l.-lacey-knowles/>

Journal cover of Systematic Biology, June issue, 2007.

UM Science Library section, University of Michigan, 2006, featuring Knowles & Richards 2005, Genetic drifts importance during Pleistocene divergence as revealed by analysis of genomic

variation.

*ISI Essential Science Indicators. ESI Featured Special Topics, New Hot Papers, March 2004, <http://esi-topics.com/> featuring Knowles & Maddison, 2002, Statistical Phylogeography, *Mol. Ecol.* 11:2623-2635.*

First cite feature and paper highlight, *Biology Letters*, Proceedings of the Royal Society of London, April 2004, http://www.pubs.royalsoc.ac.uk/proc_bio_home_link_2.shtml/ featuring Knowles et al. 2004.

UANews Science/Technology section, University of Arizona, July 2001, <http://www.UANews.org/> featuring Knowles & Markow 2001.

OUTREACH ACTIVITIES:

Hosted the first stand alone Society of Systematic Biology Meeting, University of Michigan, Ann Arbor, MI, May 20-22, 2015.

Organized a workshop of species tree estimation at UM, 2015: 100 attendees (L. Kubatko and D. Swofford instructors)

Developed an exhibit for the Exhibit Museum at the University of Michigan titled “DNA and the Tree of Life”, 2012.

Organized and taught (with L. Kubatko) a workshop on species-tree estimation at Ohio State University, 2012.

Organized and taught (with L. Kubatko) a workshop on species-tree estimation at UM, 2009.

Project developed by Jennifer Zee, Ph.D. in the Art Department. 2006, Cartoon for depicting how the changing environment during the Pleistocene glacial cycles promoted divergence that lead to the formation of new species.

2nd Annual Symposium on Community-based work project fair: Working together for change, March 11, 2004, sponsored by the Ginsburg Center. Presented our project entitled ‘Community Partnerships in Biodiversity: Strengthening the Connection between People and the Natural World’.

Sponsor of undergraduate summer research to increase the participation of underrepresented minorities in the biological sciences. Rackham SROP program, University of Michigan, 2004; hosted Ruben Omar Lastra from Univ. of Puerto Rico.

Insect I.D.-Day, participated in this program organized by the Exhibit Museum, July, 2003.

Developed interactive-learning web-site on Insect Biology involving undergraduate and graduate student participation as part of community-based work project, 2003 to present.

Presenter at Science Safari to promote the sciences to young girls (approximately 500 girls between 5-10 years of age) at the Ann Arbor Hands on Museum, 2006.

Mentor to high-school junior student Julia Baritz, 2008, in program to promote careers for women.

Delivered the “Futures”-talk to minority undergraduates participating in the National Science Foundation funded program for preparing students for graduate studies, Diversity Committee of the Society for the Study of Evolution, 2006, Stony Brook, NY.

Mentor of four incoming women freshman (one of which is Hispanic) at the UM as part of the Mentorship Program, 2006.

Speaker at a tour of the Museum of Zoology for students participating in the UM Mentorship program in coordination with the Exhibit Museum, September 2006.

Sponsor of Lizette Ramirez at participant in the minority undergraduates for the National Science Foundation, Diversity Committee of the Society for the Study of Evolution, 2011.

Mentor of minority undergraduates for the National Science Foundation, Diversity Committee of the Society for the Study of Evolution, 2001 and 2004, 2005, 2006.

Panel for the minority undergraduate “Futures” session, preparing students for graduate studies in Evolution, the National Science Foundation sponsored Diversity Committee event of the Society for the Study of Evolution, Fairbanks, Alaska, 2005.

Speaker for the minority undergraduate “Undergraduate Futures talk”, preparing students for graduate studies in Evolution, the National Science Foundation sponsored Diversity Committee event of the Society for the Study of Evolution, Norman, OK, 2011.

Mentor of minority undergraduates for SROP and Genomics Training Grant (NIH), at the University of Michigan, 2004, and the UBRP program at University of Arizona, 2000-2003.

EDITORIAL AND SOCIETAL SERVICES

Elected to serve as President-Elect in 2012, President in 2013, Past-President in 2014, for the Society of Systematic Biology

Associate Editor of *Heredity*, 2011-present.

Editorial Board, *International Journal of Entomology* (a new joint publication of the Società Entomologica Italiana and the Accademia Nazionale Italiana di Entomologia), 2013 – present.

Associate Editor of *Systematic Biology*, 2006-2012.

Associate Editor of the *Journal of Heredity*, 2003-2012.

Special topics editor for *Molecular Ecology*, 2008-2010.

Associate Editor of *Evolution*, 2007-2010.

Elected member of the council for the Society for the Study of Evolution, 2008-present.

Elected member of the council for the Society of Systematic Biology, 2005-2009; editorial board member 2002-2005.

INVITED PRESENTATIONS

2017 Knowles, L.L., **Student invited speaker*: University of Central Florida, FL.

2017 Knowles, L.L., **Capstone address**: Workshop on Molecular Evolution, MBL in Woods Hole.

2017 Knowles, L.L., **Keynote address**: ForBio (the Scandinavian Research School in Biosystematics) Annual Meeting, Bergen, Norway.

2017 Knowles, L.L., Symposium: Species in the Age of Discordance, University of Utah.

2016 Knowles, L.L., **Plenary lecture**: IV Symposia of Systematic Zoology, Belo Horizonte, Brazil

2016 Knowles, L.L., Workshop: Museu Paraense Emilio Goeldi, Belém, Brazil.

2016 Knowles, L.L., Universidade de São Paulo, São Paulo, Brazil.

2016 Knowles, L.L., Shaanxi Normal University, Xi'an, China.

2016 Knowles, L.L., **Student invited speaker*: Auburn University, Auburn, AL.

2016 Knowles, L.L., University of Miami, Coral Gables, FL.

- 2016 Knowles, L.L., Symposium: Advances in the analysis of reticulate population networks, sponsored by Society of Systematic Biology, Evolution meeting, Austin TX.
- 2016 Knowles, L.L., Colloquium: National Academy of Sciences: In the Light of Evolution X (organized by Francisco Ayala and John Avise); Irvine, CA.
- 2015 Knowles, L.L. Workshop: Statistical Phylogeography, Universidad de Concepcion, Chile.
- 2015 Knowles, L.L. **Symposium opening speaker**: Graduate Student symposium, Museu Paraense Emilio Goeldi/CZO, Belem, Brazil.
- 2015 Knowles, L.L. Symposium: Species delimitation in the age of genomics, Centre for Biodiversity Analysis, Australian National University, Canberra.
- 2015 Knowles, L.L., **Student invited speaker*: University of Florida; Gainesville, FL.
- 2014 Knowles, L.L., **Presidential address** for the Society of Systematic Biology; Raleigh, NC.
- 2014 Knowles, L.L., Symposium: Genome-Scale Phylogenetics: Analysing the Data; The 2014 Frontiers in Phylogenetics Symposium, Smithsonian Institution and the Washington Area Phylogenetics Consortium
- 2014 Knowles, L.L., **Banquet address** on the field of phylogenetics and its future directions. NSF/CBMS Mathematical Phylogeny Conference; Winthrop University, Rock Hill, SC.
- 2014 Knowles, L.L., **Student invited speaker*: Instituto de Ecologia, Xalapa City, Veracruz, Mexico (declined)
- 2014 Knowles, L.L., **Student invited speaker*: Penn State; College Station, PN
- 2014 Knowles, L.L., Watson Armor III Research Seminar Series, Field Museum of Natural History; Chicago, IL.
- 2014 Knowles, L.L., Workshop/Catalysis meeting: Simbank, NESCent; Raleigh, NC
- 2014 Knowles, L.L., Symposium: Integrative Research Center- Constraints on Big Data for biology, Field Museum; Chicago, IL.
- 2014 Knowles, L.L., Symposium: Island Biogeography, From the Oceans to the Sky, Ecology Society of American; Sacramento CA.
- 2014 Knowles, L.L., Symposium: Coevolution of the Earth and life: the role of the physical environment in species' evolution, International Palaeontological congress. Mendoza, Argentina
- 2013 Knowles, L.L., Symposium: European Society of Evolutionary Biology, Phylogeny and Phylogeography; Lisbon, Portugal.
- 2013 Knowles, L.L., Symposium: Society of Systematic Biology, Advances and challenges in practical phylogenomics; Snowbird, Utah.
- 2013 Knowles, L.L., The German Centre for Integrative Biodiversity Research (iDIV); symposium on Evolution and Adaptation; Leipzig, Germany.
- 2013 Knowles, L.L., North Carolina State University, Raleigh, NC.
- 2012 Knowles, L.L., Workshop: Quantitative Evolutionary and Comparative Genomics; Okinawa Institute of Science and Technology, Japan.

- 2012 Knowles, L.L., Institute of Biodiversity and Ecosystem Dynamics, University of Amsterdam, Netherlands.
- 2012 Knowles, L.L., Environmental Biology Department, Roma Tre, Italy.
- 2012 Knowles, L.L., **Distinguished visiting professor (Glaser Lecturer)**, Florida International University, FL.
- 2012 Knowles, L.L., **Student invited speaker*: Cornell, NY.
- 2012 Knowles, L.L., Mississippi State University, Starkville, MS.
- 2011 Knowles, L.L., **Symposium**: Species-tree estimation, Ohio State University, OH.
- 2011 Knowles, L.L., **Workshop**: NIMBios 2nd on species delimitation, Knoxville, TN.
- 2011 Knowles, L.L., Louisiana State University, Baton Rouge, LA.
- 2011 Knowles, L.L., University of Central Florida, Orlando, FL.
- 2011 Knowles, L.L., **Plenary speaker**, Annual Meeting of Sociedad de Biología de Chile, Chile
- 2011 Knowles, L.L., **Workshop**: Latin American School in Evolution, Universidad Austral de Chile, Chile
- 2011 Knowles, L.L., **Plenary speaker** for symposium entitled “Comparative phylogeography of the Gulf-Atlantic coastal plain”, Joint Meeting of Ichthyologists and Herpetologists, University of Minnesota.
- 2011 Knowles, L.L., **Student invited speaker*: American Museum of Natural History, New York, NY (postponed until 2011-2012).
- 2010 Knowles, L.L., **Plenary speaker**: symposium entitled “Frontiers in Biodiversity: a Phylogenetic Perspective”, University of Barcelona.
- 2010 Knowles, L.L., **Plenary speaker**: Biota-FAPESP international Symposium on Phylogeography, on behalf of the São Paulo State Research Foundation (FAPESP, Brazil).
- 2010 Knowles, L.L., **Network group**: Invited speaker at speciation network group on “Integrating ecology and evolution in biodiversity research”, University of Jyväskylä FINLAND.
- 2010 Knowles, L.L., **Workshop**: NIMBios_workshop on species delimitation, Knoxville, TN.
- 2010 Knowles, L.L., **Student invited speaker*: Stony Brook University, Stony Brook, NY.
- 2009 Knowles, L.L., University of California, Berkeley, CA.
- 2009 Knowles, LL. **Symposium**: Brazil Darwinian Celebration invited speaker, Porto Alegre, Brazil
- 2009 Knowles, LL. **Plenary Address**, 10th International Congress of Orthopterology, Akdeniz University, Antalya, Turkey.
- 2009 Knowles, LL. **Student invited speaker*: University of Alaska, Fairbanks, AK.
- 2009 Knowles, LL. **Student invited speaker*: Duke University, Durham, NC.
- 2009 Knowles, LL. University of California, Berkeley, CA.
- 2008 Knowles, LL. **Symposium**: Brazilian Society of Genetics. Invited special lecture on phylogeography and population genetics, Bahia, Brazil

- 2008 Knowles, LL. Symposium & workshop:Phylogeography and population genetics; Saõ Paulo, Brazil.
- 2008 Knowles, LL. Workshop: Phylogeography and population genetics, Saõ Carlos, Brazil
- 2008 Knowles, LL. Symposium: Society for Molecular Biology and Evolution Molecular: phylogeography and population genetics; Barcelona, Spain
- 2008 Knowles, LL. Symposium: Systematic Biology, Species Trees and Gene Tree Heterogeneity: Concepts, Estimation and Empirical Applications; Minneapolis, MN.
- 2008 Knowles, LL. Michigan State University, Lansing, MI.
- 2008 Knowles, LL. University of Washington, Seattle, WA.
- 2008 Knowles, LL. Cornell University, Ithaca, NY.
- 2008 Knowles, LL. University of Tennessee, Knoxville, TN.
- 2007 Knowles, LL. Symposium: Banbury Center meeting, Cold Spring Harbor Laboratory, on “Using barcode data in studies of molecular and evolutionary dynamics”.
- 2007 Knowles, LL. Iowa State University, Ames, IA.
- 2007 Knowles, LL. **Student invited speaker*: Institute of Biodiversity and Ecosystem Dynamics (IBED) of the University of Amsterdam, The Netherlands.
- 2006 Knowles, LL. Symposium: Systematic Biology: Statistics of Genealogical Species Concepts, Stony Brook University, Stony Brook, NY.
- 2006 Knowles, LL. University of Maryland, College Park, MD.
- 2006 Knowles, LL. University of Connecticut, Storrs, CT.
- 2005 Knowles, LL. University of Minnesota, Minneapolis-St. Paul, MN
- 2005 Knowles, LL. University of Colorado, Boulder, CO.
- 2005 Knowles, LL. Symposium & workshop: Phylogeography and Phylogenetics, organized by Craig Moritz, Michael Hickerson, & Dennis Pearl, Mathematical Biosciences Institute (MBI), Ohio State University, Columbus, OH.
- 2005 Knowles, LL. Symposium: Reconstructing complex species histories, Missouri Botanical Gardens Symposium, University of St. Louis, St. Louis, MO.
- 2005 Knowles, LL. Community genetics and phylogenetics symposia, Center for Community Genetics, University of Minnesota, St. Paul, MN.
- 2004 Knowles, LL. Brigham Young University, Provo, UT.
- 2004 Knowles, LL. University of Idaho, Moscow, ID.
- 2003 Knowles, LL. University of Montana, Missoula, MT.
- 2003 Knowles, LL. Symposium: Round-table discussion on “Coalescent theory and genomics”, Statistical Genomics Training Group. University of Michigan, Ann Arbor, MI.
- 2003 Knowles, LL. Symposium & workshop: Historical biogeography and phylogeography, Uppsala, Sweden.
- 2003 Knowles, LL. Ohio State University, Columbus, OH.

- 2002 Knowles, LL. Arizona State University, Tempe, AZ.
- 2002 Knowles, LL. Symposium: International Dipterology Congress, Brisbane, Australia.
- 2002 Knowles, LL. University of Michigan, Ann Arbor, MI.
- 2001 Knowles, LL. University of California, San Diego, CA.
- 2001 Knowles, LL. Speciation: new insights and directions. Univ. of California, San Diego, CA.
- 2001 Knowles, LL. University of California, Berkeley, CA.
- 2000 Knowles, LL. Yale University, New Haven, CT.
- 2000 Knowles, LL. Symposium: Phylogeography, Hybridization and Speciation in Aussois France.

SELECT CONTRIBUTED PRESENTATIONS

2016 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Austin, TX

McKnight T, Knowles LL. Multidimensional niche evolution as a driver of diversification: phylogenetic insights from codistributed predatory robber flies (Asilidae: Lasiopogon)

Munoz C, Knowles LL Mimics here and there, but not everywhere: Müllerian mimicry in *Ceroglossus* ground beetles?

Padro J, Knowles LL. Genomic signatures of shared life history traits versus biome specific histories: comparison across 3 widespread marsh rat species (*Holochilus*)

Kenney M, Qe H, Knowles LL. Identifying the number and geographic location of ancestral refugia with spatially explicit models and ABC in the Alaskan Ground Squirrel

Olave M, Knowles LL. Evidence for shared refugia based on allele frequency gradients of genomic data among five alpine Alaskan small mammal species?

Thomaz A, Christie MR, Knowles LL. Riverscape genetics: modeling genomic expectations to test hypotheses about river network architecture as drivers of evolutionary dynamics in aquatic populations

Bemmel JB, Title PO, Ortego J, Knowles LL. Tests of species-specific models reveal the importance of drought in postglacial range shifts of a Mediterranean-climate tree: insights from iDDC modelling and ABC model selection

2016 Island Biology, Symposium on Invertebrate Evolution in Islands, University of Azores:

Papadopoulou, A, Knowles LL. Linking macro- and microevolutionary perspectives to evaluate the role of Pleistocene sea-level oscillations in driving diversification patterns.

2016 International Congress of Entomology, Orlando, FL: McKnight, T, Knowles LL. Ecological and phylogenetic diversification of multidimensional niches in predatory *Lasiopogon* robber flies (Diptera: Asilidae)

2015 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Guarujá, Brazil:

Sukumaran, J, Economo, E, Knowles LL. Machine Learning Biogeographic Processes from Biotic Patterns: A New Trait-Dependent Dispersal and Diversification Model with Model-Choice by Simulation-Trained Discriminant Analysis

2014 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Raleigh, North Carolina:

Papadopoulou, A, Knowles LL. Genomic tests of Pleistocene aggregate island complexes as drivers of divergence: differentiation across local geographic scales in Caribbean crickets

Huang, J-P, Knowles LL. Species versus subspecies designations in *Hercules* beetles:

- quantitative delimitation using multiple data types and an integrative Bayesian approach
- He, Q, Knowles LL. Locating a selection signature inside chromosomal rearrangements for tests of adaptive divergence in *Anopheles gambiae*
- Tran, L, Knowles LL. Toward a mechanistic understanding of trait-dependent diversification: The role of niche breadth in the diversification of foregut-fermenting mammals
- McKnight, T, Knowles LL. Multidimensional niches and the ecological and phylogenetic diversification of predatory *Lasiopogon* robber flies
- Thomaz, A, Christie, M, Knowles LL. River Networks and the Genetics of Aquatic Populations
- 2014 Joint Meeting of Ichthyologists and Herpetologists: Andréa Thomaz, Vinícius Bertaco, Luiz R. Malabarba, L. Lacey Knowles. Species delimitation integrating morphological and genetic data within a Bayesian framework using iBPP: application in the southeastern Brazilian species complex *Hollandichthys* (Teleostei: Characiformes)
- * awarded best student presentation by Andréa Thomaz
- 2014 Botany Meeting, Boise, Idaho: Massatti R, Knowles LL. Microhabitat differences impact phylogeographic concordance of co-distributed species: genomic evidence in montane sedges (*Carex* L.) from the Rocky Mountains
- 2013 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Snowbird, Utah:
- Lanier, H, Knowles LL. Candidate loci versus next-generation genomic data for phylogenetic estimation
- Tran, L, Knowles LL. Monkey eat, monkey do: Folivory specialization and the diversification of colobine monkeys
- He, Q, Knowles LL. Intergrative testing of how environments from the past to the present shape genetic structure across landscapes
- Economo, E, Klimov P, Sarnat E, Knowles LL. The evolution of hyperdiversity in the ant genus *Pheidole*
- Klimov P, Economo, E, Knowles LL. Colonization history and speciation dynamics: understanding species diversity patterns in the hyperdiverse *Pheidole* ants from the South Pacific
- Massatti R, Knowles LL. Using Illumina data to test for phylogeographic concordance among montane plant species
- Sturaro MJ, Avila-Pires TCS, Rodrigues MT, Knowles LL. Phylogeographic tests of a widespread lizard (*Cercosaura ocellata*): geographic distance versus ecological adaptation across Amazonian, Cerrado, and Atlantic forest habitats
- 2012 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Ottawa, Canada:
- Alvarado-S, D, Knowles LL. Phylogenetic analysis of niche lability in a tropical generalist species: exploring the consequences of living in an heterogeneous environment
- Lanier, H, Knowles LL. Using species-tree methods to resolve deep phylogenies
- Tran, L, Knowles LL. Is foregut fermentation a trump in seasonal habitats? Testing how an evolutionary innovation shapes species richness in a primate radiation
- He, Q, Knowles LL. Species-tree estimation using SNP data from deep sequencing in non-model organisms
- Thomaz, A, Malabarba LR, Bonatto SL, Knowles LL. A palaeodrainage model for estimating dispersal capability and incipient speciation in freshwater fish
- 2011 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Norman, OK:
- Edwards, DL, Knowles LL. Integrative approaches to species delimitation: is DNA enough?

He, Q, Knowles LL. Utility of next-generation sequencing for phylogenomic analysis of diverse non-model taxa

Alvarado-S, D, Knowles LL. Assessing how environmental heterogeneity across the tropical Andes impact species diversity

Lanier, H, Knowles LL. How accurate are species trees when model assumptions are violated?

*Ramirez, L, Economo E, Blanchard B, Knowles LL. The evolutionary history of Solomon Islands *Pheidole* (Hymenoptera: Formicidae) inferred with mtDNA

Huang, J-P, Knowles LL. Island Connectivity and Speciation across LGM: a study of rhinoceros beetles (genus *Xylotrupes*) across islands in the Asian-Australian region

Massatti, R., Knowles LL. Evolutionary lability of stigma number in *Carex* (Cyperaceae): Implications for sedge systematics and character evolution.

*undergraduate from NSF supported program to increase the participation of underrepresented groups

2010 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Portland, OR:

Edwards, DL, Keogh JS, Knowles LL. Model-based comparative phylogeographic hypothesis testing of co-distributed Australian reptiles with coupled ENM and ABC analyses

Tran, LAP, Knowles LL. Ecological divergence as a driver of Asian colobine monkey diversification?

Huang, H, Tran LAP, Knowles LL. Evaluating the robustness of phylogenetic estimates of cichlid radiations from the view point of coalescent variance

He, Q, Knowles LL. An approach for coupling ecological, demographic, and genetic models to test spatially-explicit phylogeographic hypotheses

Pressler, KK, Heldt A, Semaur K, Knowles LL. The genetic consequences of habitat disturbance in the Pacific giant salamander

Alvarado-S, D, Knowles LL. Incorporating more realistic demographic histories in population expansion studies: insights from coupled ecological, demographic and genetic models

2009 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Moscow, ID:

Zellmer AJ, Knowles LL. Adaptive divergence of wood frog populations in the face of gene flow.

Tran LAP, Knowles LL. Resolving phylogenetic relationships among Asian colobine monkeys with a Bayesian estimate of the underlying species tree.

Huang H, He Q, Knowles LL. Why more loci does not necessarily add up to a more accurate species tree estimate.

Gibbons KK, Knowles LL. Using the untested to infer the unknown: why TCS should not be used to infer population structure.

Heldt A, Lambropoulos D, Gibbons KK, Knowles LL. Testing last male advantage theory using the polyandrous Caribbean cricket *Amphiacusta*.

Fedina TY, Knowles LL. Testing for sexually selected divergence among allopatric populations of *Amphiacusta sanctaerucis* (Gryllidae: Phalangopsina).

He Q, Knowles LL. Rapid evolution via standing variation: an adaptive seed bank in chromosomal inversions.

Alvarado-S D, Knowles LL. Impact of environmental heterogeneity on adaptive divergence through its effects on gene flow in montane habitats.

McCormack JE, Zellmer AJ, Knowles LL. Ecological divergence as a consequence of speciation in *Aphelocoma* jays: niche models, null models, and a new multivariate method.

2008 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Minneapolis, MN.

Knowles LL. Systematic Biology Symposium: Species Trees and Gene Tree Heterogeneity: Concepts, Estimation and Empirical Applications.

Zellmer AJ, LL Knowles, EE Werner. Temporal dynamics of population genetic divergence revealed by comparison of historic and contemporary landscape connectivity. 2008

McCormack JE, H Huang, LL Knowles. Breaking them down and building them up: reconstructing maximum likelihood species trees from discordant gene trees.

Huang H, Y-H Chan, LL Knowles. The expansion of zones where the most likely gene trees discord with the species tree.

Fedina TY, and LL Knowles. Sexual selection in diverging populations of a Caribbean cricket.

2007 Zellmer AJ, LL Knowles, EE Werner. The effect of matrix structure on gene flow between *Rana sylvatica* populations. Annual meeting of the Ecological Society of America, San Jose, California.

2006 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and Society for the Study of Evolution in Stony Brook, NY :

Marquez EJ, LL Knowles. Accelerated divergence of co-evolving sexual-selected traits during species diversification.

Richards CL, LL Knowles. The effects of landscape features on patterns of gene flow in Panamanian golden frogs.

Oneal E, D Otte, LL Knowles. Tests of selective divergence in male genitalia in Caribbean crickets.

Connallon T, LL Knowles. A test of the benefits of sexual recombination by analysis of protein evolution in yeast.

Carstens BC, LL Knowles. Gene trees and species phylogeny in *Melanoplus* grasshoppers.

Huang H, GA Gray, LL Knowles. Exploration of the processes underlying an unusual phylogeographic pattern.

2005 Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, & Society for the Study of Evolution, Fairbanks, AK.

Carstens BC, LL Knowles. Species divergence parameters: exploration with a genomic library and different sampling schemes. Oneal E, D Otte, LL Knowles. Timing and patterns of colonization in a radiation of Caribbean crickets (genus *Amphiacusta*).

Oneal E, T Connallon, LL Knowles. Female choice for good genes vs. direct benefits in cactophilic *Drosophila*.

Marquez EJ, LL Knowles. Links between sexually selected genitalic divergence and rates of speciation in montane grasshoppers.

Connallon, T. and Knowles, L.L. X-linked fitness variation maintained by overdominant selection in *Drosophila*.

Richards, C.L. and Knowles, L.L. Tests of phylogeographic and morphological concordance among Panamanian golden frog (*Atelopus*) populations.

2004 Connallon, T. and Knowles, L.L. Testing a hypothesis of sexual antagonism with comparative *Drosophila* microarray data. Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, & Society for the Study of Evolution, Ft. Collins, CO.

2004 Knowles, L.L. and W.P. Maddison. Inferring phylogeny despite incomplete lineage sorting. Joint annual meeting of the American Society of Naturalists, Society of Systematic Biologists, and

Society for the Study of Evolution in Ft. Collins, CO.

2002 Knowles, L.L. and T.A. Markow. Non-antagonistic reproductive interactions between the sexes: offsetting the load of sexual conflict. *Drosophila* Meetings, San Diego, CA.

OTHER SERVICES

External Review Committee Member for the Department of Evolution, Ecology and Organismal Biology (EEOB) at The Ohio State University, 2014.

Executive Committee for NIH Genome Training Grant, University of Michigan, Ann Arbor.

NSF Evolutionary Genetics panel for the Population and Evolutionary Processes cluster, 2007

NSF Systematic Biology panel, 2010

NSF Dimensions of Biodiversity panel, 2011

NSF Phylogenetic Systematics Pre-Proposal panel, 2014

Discussant for the NEScent workshop on the future directions of the NSF program Dimensions of Biodiversity, 2010.

Reviewer for National Science Foundation: DEB Division of Population Biology: Population and Evolutionary Process Cluster, DEB Division of Systematic Biology, Animal Behavior, Frontiers in Integrative Biological Research (FIBR) program in the Directorate for Biological Sciences (BIO), International Research Fellowship Program (IRFP), OISE Collaborative research (DEB).

Reviewer for the BBSRC UK (Biotechnology and Biological Sciences Research Council, UK) and the NERC UK (Natural Environment Research Council, UK), the Wellcome Trust (UK)

Reviewer for the Royal Society of New Zealand, Marsden Research Fund, Ecology, Evolution and Behavior Panel.

Reviewer for the Deutsche Forschungsgemeinschaft (German Research Foundation)

Reviewer for the NRS (French National Science Research Centre) and Inserm (its medically oriented equivalent).

Reviewer for proposals to the M.J. Murdock Charitable Trust, Research and Science Grants Programs

Reviewer for the Canon National Parks Science Scholars Program for the Americas, graduate research in evolutionary ecology; a collaboration of the National Park Service, Canon U.S.A. and the American Association for the Advancement of Science.

External Reviewer for thesis, Department of Botany, University of Cape Town, South Africa.

Reviewer for the journals:

Evolution

Proceedings of the National Academy of Sciences of the USA

Systematic Biology

Proceedings of the Royal Society of London Series B,

Biological Journal of the Linnean Society

Journal of Biogeography

Marine and Freshwater Research

Science

Trends in Ecology & Evolution

Genetics

Molecular Biology & Evolution

Molecular Phylogenetics & Evolution

Molecular Ecology

Annals of the Entomological Society

Organisms Diversity & Evolution

Journal of Heredity

Current Biology
Nature Review Genetics
BMC Biology
Journal of Evolutionary Biology
Journal of Theoretical Biology
American Journal of Botany
American Naturalist

PLos Biology
Philosophical Transactions of the Royal
Society of London
Trends in Genetics
Bioinformatics
Heredity

Invited commentary columnist for the online review of articles, Biomed Net, *Trends in Ecology and Evolution*, section Journal Club, August 2002 -2005, and the journal *Trends in Ecology and Evolution*, section Journal Club, August 2000 -2002.

Judge for the Society of Systematic Biology best graduate student presentation, 2008.

Contributor to the Tree of Life Project.

MEMBERSHIP IN ACADEMIC SOCIETIES

The Society for the Study of Evolution
Society of Systematic Biologists
Molecular Biology and Evolution Society
Genetics Society of America
Entomological Society of America
Orthopterists' Society

COURSES TAUGHT

Insect biology
Principles of Evolution (graduate and honors undergraduates)
Evolution (undergraduates)
Speciation and Sexual Selection Seminar

ADVISEES

Postdoctoral Fellows

Current: Luciana Resende, Jeet Sukumaran, Melisa Olave
Former: Katharine Marske (now an Assist. Prof. at University of Oklahoma), Anna Papadopoulou (now an Assit. Prof. at University of Cyprus), Hayley Lanier (now an Assist. Prof. at University of Oklahoma), Mark Christie (now an Assist. Prof. at Purdue University), Dan Edwards (now an Assist. Prof. at UC Merced), Jason Brown (now an Assit. Prof. at Southern Illinois University), Pavel Klimov (now an Assoc. Researcher at UM with Barry OConnor), Bryan Carstens (now an Assoc. Prof. at The Ohio State University), John McCormack (now an Assist. Prof. at Occidental College, CA), Tatyana Fedina (now a postdoc at U. Michigan medical school)

Ph.D. Students

Advisor to: Andrea Thomaz, Carlos Munoz, Tristan McKnight, Giorgianna Auteri, Sasha Bishop
Former Ph.D. students: Jen-Pan Huang (Postdoc at the University of Chicago), Lucy Tran (NSF Postdoctoral Fellow, UC Berkeley), Qixin He (Postdoc at the University of Chicago), Rob Massatti (researcher, Colorado), Diego Alvarado-Serrano (postdoc at CUNY, Mike Hickerson), Huateng Huang (postdoc in Rabosky lab, University of Michigan), Tim Connallon (now an Assist. Prof. at Monash University, Melbourne Australia), Corrine Richards (now an Assistant Professor at Tulane University), Elen Oneal (now a postdoc at Duke), Amanda Zellmer (now a Research Scientist at Occidental College, CA)

Committee member to: Jingchun Li (finished), Jordan Bemmels, Wei-Chin Ho, Thomas Jenkinson, Celia Churchill (finished), Wenfeng Qian (finished), Mike Sheehan (finished), Heather Lerner (finished), Akane Uesugi (finished), Jess Peirson (finished), Joseph Brown (finished), Lucia Luna Wong (finished), Megan Shilts (finished), Mandy Izzo (finished), Holly Petrillo (finished: School of Natural Resources)

External committee member: Trevor Williams, Brigham Young University

M.S. Students

Advisor to: Mariah Kenney

Former MS students: Sabrina Hepburn (finished), Kelsey Gibbons (finished; technician at UM Dental School)

Undergraduate students

Alyssa Meller , REU undergraduate research, 2016-2017

Lang DeLancey, undergraduate researcher, 2016

Natalie Greenhalgh, REU undergraduate researcher, 2015-2016.

Morgan Rondinelli, undergraduate research 2014-2015.

Benjamin Blanchard, undergraduate research 2010-2013 (now Ph.D. student University of Chicago).

Dan Swanson, undergraduate researcher and research assistant, 2008-2013 (now in Ph.D. program University of Illinois)

Lizette Ramírez, undergraduate research 2010-2012 (completed Masters Frontiers program at UM, Department of Ecology and Evolutionary Biology)

Levi Moris, undergraduate research 2011-2012 (joined research team coordinating research on gelatas in Ethiopia with UM researchers, Dr. Bergmann and Dr. Beehner).

Kandice Karll (Andrian College), undergraduate research 2010-2011

Kevin Gabelman, undergraduate research 2010-2011(consultant working for environmental company).

Priscilla Hernandez (University of Puerto Rico) undergradate research 2009 NSF REU.

Kassandra Semrau, undergradate research 2009 NSF REU (completed MS at University of Michigan, now a Outreach Coordinator for Parks and Rec)

James Rivard, undergradate research 2009 NSF REU.

Ariel Heldt, undergradate research 2007, 2008 NSF REU.

Daphne Lambropoulos, undergradate research 2008 NSF REU (University of Michigan medical school)

Christina Sillaman, undergraduate and postbacularate research, 2008-10 (Ph.D. program at the University of Illinois)

E.J. Hortsman, Katie Behrmann, and Riley O'Hara, undergraduate research 2008.

Lisa Marten, undergraduate research 2007 NSF REU (MPA and MSES at Indiana University in the School of Public and Environmental Affairs).

Kathleen Bachynski, undergraduate research 2006 NSF REU (School of Public Health graduate program University of Michigan)

Yat Hei (Bernard) Chan, undergraduate research 2005-2006.

Marcía Keat, Undergraduate research, 2005-06, 2005 NSF REU.

Honors advisor to: Thomas Chappel, 2004 (Ph.D. graduate program of Duke University)

Ruben Omar Lastra (U. of Puerto Rico) SROP (sponsored by Rackham Graduate School and the Genome Training Grant, Human Genetics Program), 2004 (now graduate student at Northwestern)

Visiting researchers and students

Sarp Kaya, 2016, Akdeniz University Faculty of Science, Turkey

Heraldo Norambuena, 2016, Santiago, Chile
Renata Pirani, 2016, Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil
Joyce Rodrigues do Prado, 2015, Mestra em Ciências- Universidade de São Paulo, São Paulo, Brazil
Luciana Resende, 2015, Departamento de Biologia Geral, Universidade Federal de Minas Gerais, , Belo Horizonte, Brazil
Juliana Mariani Wingert, 2014, Universidade Federal do Rio Grande do Sul, Campus do Vale, Instituto de Biociências, Departamento de Zoologia e PPG em Biologia Animal, Porto Alegre, RS, Brasil
Ma Libin, 2014-2016, School of Life Sciences, Northeast Normal University, China
Marcelo Sturaro, 2013-2014, Museu Paraense Emílio Goeldi/CZO, Belém, Brazil
Victor Noguerales Rodriguez, 2014, Instituto de Investigación en Recursos Cinegéticos - IREC (CSIC-UCLM-JCCM), Madrid, Spain
Joaquín Ortego, 2014, Instituto de Investigación en Recursos Cinegéticos (CSIC-UCLM-JCCM), Ciudad Real, Spain
Melisa Olave, 2013, Centro Nacional Patagónico – Consejo Nacional de Investigaciones Científicas y Técnicas (CENPAT-CONICET), Puerto Madryn, Argentina
Eduard Solá, 2013, Department de Genètica, Facultat de Biologia and Institut de Recerca de la Biodiversitat (IRBio), Universitat de Barcelona, Barcelona, Catalonia, Spain
Guo-Fang Jiang, 2012-2014, College of Life Sciences, Nanjing Normal University, China
Riashna Sithaldeen, 2012, Cape Town, South Africa
Shengquan Xu, 2007-2008, Institute of Zoology, Life Science College, Shaanxi Normal University, China

PROFESSIONAL REFERENCES

Dr. Douglas Futuyma, Distinguished Professor, Department of Ecology and Evolution, Stony Brook University, Stony Brook, NY 11794-5245, phone: (631) 632-1411, e-mail: futuyma@life.bio.sunysb.edu

Dr. Wayne Maddison, Professor & Canada Research Chair, Department of Zoology & Botany, University of British Columbia, Vancouver, B.C., Canada, V6T 1Z4, phone: (604) 822-1545, e-mail: wmaddisn@interchange.ubc.ca

Dr. Craig Moritz, Professor and ARC Laureate Fellow, Research School of biology, Building 116, The Australian National University, Acton, ACT 0200, phone: 61255651, e-mail: craig.moritz@anu.edu.au

Dr. Daniel Otte, Curator, Department of Entomology, Academy of Natural Sciences, Philadelphia, PA 9193, phone: (215) 299-1188, e-mail: otte@say.acnatsci.org