RYAN J. HARRIGAN

PUBLICATIONS

2018 Ruegg KC, Bay RA, Anderson EC, Saracco JF, **Harrigan RJ**, Whitefield M, Paxton EH, Smith TB. Ecological genomics predicts climate vulnerability in an endangered southwestern songbird. *Ecology Letters*, 21(7): 1085-1096.

2018 Schoenberg FP, Gordon JS, and **Harrigan RJ**. Analytic computation of nonparametric Marsan-Lengliné estimates for Hawkes point processes. *Journal of Nonparametric Statistics* 1048-5252, doi:10.1080/10485252.2018.1475663.

2018 Bay RA, **Harrigan RJ**, Buermann W, Underwood CL, Gibbs HL, Smith TB, Ruegg KC. Response to Comment on 'Genomic signals of selection predict climate-driven population declines'. *Science* 640, doi:10.1126/science.aat7956.

2018 Bay RA, **Harrigan RJ**, Underwood CL, Gibbs HL, Smith TB, Ruegg KC. Genomic signals of selection predict climate-driven population declines. *Science* 359:83-86.

2018 Tiee MS, **Harrigan RJ**, Thomassen HA, Smith TB. Ghosts of infections past: using archival samples to understand a century of monkeypox virus prevalence among host communities across space and time. *Royal Society Open Science* 5:171089.

2018 Moy B, **Harrigan RJ**, and Godwin H (2018). Building capacity to support the use of geospatial modeling for vector borne disease control: West Nile virus as a case study. *Journal of Environmental Health*, 80:24-31.

2018 Chaffee AW, Park J, **Harrigan RJ**, Krebs A, Schoenberg FP. Application of Hawkes models to predict the spread of Ebola in West Africa. *Biometrics*, Submitted.

2018 Hendricks SA, Schweizer RM, **Harrigan RJ**, Pollinger JP, Paquet PC et al. Natural re-colonization and admixture of wolves (Canis lupus) in the US Pacific Northwest: challenges for the protection and management of rare and endangered taxa. *Heredity*: 10.1038/s41437-018-0094-x.

2018 Heppenheimer E, **Harrigan RJ**, Koepfli K-P, Horwath R, Brzeski KE, et al. Population genomic analysis of North American eastern wolves (Canis lycaon) reveals a conservation priority. *Genes*, submitted November 2018.

2017 **Harrigan RJ***, Thomassen, HA, Delaney KS, Riley SPD, Serieys LEK, Pease K, Wayne RK, and Smith TB. Determining the drivers of population structure in a highly urbanized landscape to inform conservation

planning. *Conservation Biology* doi:10.1111/cobi.12969. *co-first author

2017 Zhen Y, **Harrigan RJ**, Ruegg KC, Anderson EC, Ng TC, Lao S, Lohmueller KE, Smith TB. Genomic divergence across ecological gradients in a Central African rainforest songbird (Andropadus virens). *Molecular Ecology* 26:4966-77.

2017 Ruegg KC, Anderson EC, **Harrigan RJ**, Paxton KL, Kelly JF, Moore F, Smith TB. Genetic assignment with isotopes and habitat suitability (GAIAH), a migratory bird case study. *Methods in Ecology and Evolution*. DOI: 10.1111/2041-210X.12800.

2016 Schweizer RM, Robinson J, **Harrigan RJ**, Silva P, Galverni M, Musiani M, Green RE, Novembre J, Wayne RK. Targeted capture and resequencing of 1040 genes reveal environmentally driven functional variation in grey wolves. *Molecular Ecology* 25: 380-402. DOI: 10.1111/mec13467.

2016 Schweizer RM, VonHoldt BM, **Harrigan RJ**, Knowles JC, Musiani M, Coltman D, Novembre J, Wayne RK. Genetic subdivision and candidate genes under selection in North American grey wolves. *Molecular Ecology* 25: 357-379. DOI: 10.1111/mec13364.

2016 Hendricks SA, Sesink Clee PR, **Harrigan RJ**, Pollinger JP, Freedman AH, Callas R, Figura PJ, Wayne RK. Re-defining historical geographic range in species with sparse records: Implications for the Mexican wolf reintroduction program. *Biological Conservation* 194: 48-57.

2016 Locatelli S, **Harrigan RJ**, Sesink Clee PR, Mitchell MW, McKean KA, Smith TB, Gonder MK. Why are Nigeria-Cameroon chimpanzees (Pan troglodytes ellioti) free of SIVcpz infection? *PLOS ONE*. DOI: 10.1371/journal.pone.0160788.

2016 Contina A, **Harrigan RJ**, Pollinger JP, Bridge ES, Kelly JF, Smith TB. Genome-wide identification and characterization of simple sequence repeats in the Painted Bunting (Passerina ciris) for population and forensic analyses. *Conservation Genetics Resources* 8: 43-81.

2015 **Harrigan RJ***, George TL, LaManna JA, DeSante DF, Saracco JF, Smith TB. Persistent impacts of West Nile virus on North American bird populations. *Proceedings of the National Academy of Sciences*. 112(46):14290-4. PubMed PMID: 26578774; PubMed Central PMCID: PMC4655513. *co-first author

2015 Larison, B, **Harrigan RJ**, Rubenstein DI, Smith TB. Concordance on zebra stripes is not black and white: response to comment by Caro & Stankowich. *Royal Society Open Science*. DOI: 10.1098/rsos.150359.

2015 Larison, B, **Harrigan RJ**, Thomassen HA, Rubenstein DI, Chan-Golston AM, Li E, Smith TB. How the zebra got its stripes: a problem with too many solutions. *Royal Society Open Science* 2(1):140452. PubMed PMID: 26064590; PubMed Central PMCID: PMC4448797.

2014 **Harrigan RJ**, Sedano R, Chasar A, Chaves JA, Nguyen JT, Whitaker A, Smith TB. New host and lineage diversity of avian haemosporidia in the Northern Andes. *Evolutionary Applications* 7(7):799-811. DOI: 10.1111/eva.12176.

2014 Chasar A, **Harrigan RJ**, Holbrook K, Dietsch T, Fuller T, Wilkelski M, Smith TB. Spatial and temporal patterns of frugivorous hornbill movements in Central Africa and their implications for rainforest conservation. *Biotropica* November 2014:1-8. DOI:10.1111/btp.12160.

2014 **Harrigan RJ**, Thomassen HA, Buermann W, Smith TB. A continental risk assessment of West Nile virus under climate change. *Global Change Biology* 20(8):2417-2425. DOI: 10.1111/gcb.12534.

2014 Oakgrove K, **Harrigan RJ**, Loiseau C, Guers S, Seppi B, Sehgal RN. Distribution, diversity, and drivers of blood parasite co-infections in Alaska bird populations. *International Journal for Parasitology* 44:717-727.

2014 Larison B, Njabo KY, Chasar A, Fuller T, **Harrigan RJ**, Smith TB. Spillover of pH1N1 to swine in Cameroon: an investigation of risk factors. *BMC Veterinary Research* 10:55.

2013 Rundel CW, Wunder MB, Alvarado AH, Ruegg KC, **Harrigan RJ**, Schuh A, Kelly JF, Siegel RB, Desante DF, Smith TB, Novembre J. Novel statistical methods for integrating genetic and stable isotope data to infer individual-level migratory connectivity. *Molecular Ecology* 22: 4163-4175.

2013 Hosseini PR, Fuller T, **Harrigan RJ**, Zhao D, Arriolo CS, Gonzalez A, Miller MJ, Xiao X, Smith TB, Jones JH, Daszak P. Metapopulation dynamics enable persistence of Influenza A, including A/H5N1, in poultry. *PLOS ONE* 8(12): e80091.

2013 Sheta BM, Fuller TL, Larison B, Njabo KY, Ahmed AS, **Harrigan RJ**, Chasar A, Khidr AA, Elbokl MM, Habbak LZ, Smith TB. Putative human and avian risk factors for avian influenza virus infections in backyard poultry in Egypt. *Veterinary Microbiology* 168:208-213.

2013 Smith TB, **Harrigan RJ**, Kirschel ANG, Buermann W, Saatchi S, Blumstein DT, de Kort SR, Slabbekoorn H. Predicting bird song from space. *Evolutionary Applications* 6:6. DOI: 10.1111/eva.12072.

2013 **Harrigan RJ**, Loiseau C, Bichet C, Julliard R, Garnier S, Lendvai AZ, Chastel O, and Gabriele Sorci. Predictions of avian Plasmodium expansion under climate change. *Scientific Reports* 3:1126. DOI: 10.1038/srep01126PMID: 23350033.

2013 Cornuault JC, Khimoun A, **Harrigan RJ**, Bourgeois YXC, Mila B, Thébaud C, and P Heeb. The role of

ecology in the geographical separation of blood parasites infecting an insular bird. *Journal of Biogeography* DOI: 10.1111/jbi.12098

2012 Loiseau C, **Harrigan RJ**, Cornel AJ, Guers SL, Dodge M, Marzec T, Carlson JS, Seppi B, and RNM Sehgal. First evidence and predictions of Plasmodium transmission in Alaskan bird populations. *PLOS ONE* 7(9):e44729doi:10.1371/journal.pone.0044729PMID: 23028595.

2011 Loiseau C, **Harrigan RJ**, Robert A, Bowie RCK, Thomassen HA, Smith TB, and RNM Sehgal. Host and habitat specialization of avian malaria in Africa. *Molecular Ecology* 21(2):431-441. DOI: 10.1111/j.1365-294X. 2011.05341.x PMID: 22142265.

2011 Parmentier I, **Harrigan RJ**, Buermann W, Mitchard ETA, Saatchi S, et al. Predicting alpha diversity of African rain forests: models based on climate and satellite-derived data do not perform better than a purely spatial model. *Journal of Biogeography* 38(6):1-13doi:10.1111/j.1365-2699. 2010.02467.x

2011 Sehgal RNM, Buermann W, **Harrigan RJ**, Bonneaud C, Loiseau C, Chasar A, Sepil I, Valkiunas G, Iezhova T, Saatchi S, Smith TB. Spatially explicit predictions of blood parasites in a widely distributed African rainforest bird. *Proceedings of the Royal Society* B. 278(1708):1025-1033. PMCID: PMC3049032.

2010 **Harrigan RJ**, Thomassen HA, Buermann W, Cummings R, Kahn ME, and TB Smith. Economic conditions predict prevalence of West Nile virus. *PLOS ONE* e15437, DOI: 10.1371/journal.pone.0015437. t001. PMID: 21103053.

2010 Thomassen, HA, Cheviron ZA, Freedman AH, **Harrigan RJ**, Wayne RK, and TB Smith. Spatial modeling and landscape-level approaches for visualizing intra-specific variation. *Molecular Ecology* 19: 3532-3548. PMID: 20723053

2009 Njabo K, Cornel AJ, Sehgal RNM, Loiseau C, Buermann W, **Harrigan RJ**, Pollinger J, Valkiūnas G, and TB Smith. Coquillettidia (Culicidae, Diptera) mosquitoes are natural vectors of avian malaria in Africa. *Malaria Journal* 8: 1-12 DOI:10.1186/1475-2875-8-193.

2008 **Harrigan RJ**, Mazza ME, and MD Sorenson. Computation vs cloning: evaluation of two methods for haplotype determination. *Molecular Ecology Resources* 8, 1239-1248 DOI: 10.1111/j.1755-0998.2008.02241.x

2005 Kulikova IV, Drovetski SV, Gibson DD, **Harrigan RJ**, Rohwer S, Sorenson MD, Winker K, Zhuravlev YN, and K McCracken. Phylogeography of the Mallard (Anas playrhynchos): Hybridization, dispersal, and lineage sorting contribute to complex geographic structure. *The Auk* 122, 949-965.

2004 **Harrigan RJ**. "For Supper or Soul; The Mollusca of K'axob" Chapter 13 in *K'axob: Ritual, Work, and Family in an Ancient Maya Village*. Edited by Patrica A. McAnany. Cotsen Institute of Archaeology at UCLA, Los Angeles.

MANUSCRIPTS IN PREPARATION:

Harrigan R.J., C. Taylor, K.C. Ruegg, T.B. Smith. Using network modeling to understand the complete life cycles and ecological requirements of migratory birds.

Harrigan, R.J., I.V. Kulikov, K. McCracken, J. Peters, and M.D. Sorenson. Global Phylogeography, speciation, and New World origins within the Mallard Complex (genus: Anas).

TEACHING EXPERIENCE:

Boston University:

1998	Laboratory Teaching Fellow, Evolutionary Ecology
1999	Course Discussion Teaching Fellow, Marine Biology
1999	Laboratory Teaching Fellow, Animal Behavior
2000	Laboratory Teaching Fellow, Environmental Ecology
2000	Laboratory Teaching Fellow, Animal Behavior
2001	Laboratory Teaching Fellow, Vertebrate Zoology
2002	Laboratory Teaching Fellow, Animal Behavior
2003	Laboratory Teaching Fellow, Animal Behavior
2004	NSF-STAMP Fellow, Quincy High School, grades 10-12

University of California, Los Angeles:

2011	Instructor, Environment 121, Conservation of Biodiversity
2012	Instructor, Workshop on Avian Influenza in Egypt, February 28th-March 1, Cairo, Egypt
2012	Instructor, Workshop on Avian Influenza in Cameroon, August 13-17, Yaoundé, Cameroon

2013 Instructor, Environment 121, Conservation of Biodiversity

2013 Instructor, NSF-sponsored Professional Development Workshop in Gabon, July 21-25, Franceville, Gabon

2014 Instructor, African International Workshop on Malaria and Related Haemosporidian Parasites of Wildlife, June 29 - July 4, Yaoundé, Cameroon

2014 Instructor, NSF-sponsored Professional Development Workshop in Cameroon, July 7-13, Yaoundé, Cameroon

2015 Instructor, Environment 121, Conservation of Biodiversity

2015 Advisor, Biodiversity Action Research Team, Education for Sustainable Living Program, UCLA Spring Quarter

2016 Instructor, NSF-sponsored Professional Development Workshop in Cameroon, July 11-15, Yaoundé, Cameroon

2017 Instructor, NSF-sponsored Professional Development Workshop presented remotely using developed VirtualBox Environment, June 28-July 3, Yaoundé, Cameroon.

PRESENTATIONS AT SCIENTIFIC MEETINGS AND PUBLIC EVENTS:

2018 Harrigan RJ. "Spatially explicit analyses of morphological, genetic, and genomic data". Conservation Genomics Workshop – UCLA La Kretz Center for Conservation Science, March 28.

2018 Harrigan RJ. "Biodiversity in Los Angeles" Cohabitation: Cities, Nature and the Evolving Ecosystem, UCLA Hamer Museum, Los Angeles, March 21.

2018 Harrigan RJ. "The Bird Genoscape Project". Los Angeles Energy Research Symposium, UCLA Luskin School of Public Affairs, March 19.

2016 Harrigan RJ. "The Past, Present, and Future of Vector-Borne Diseases in a Changing World." Biology Colloquium, California State University Northridge, October 14.

2015 Harrigan RJ. "Ideas Aren't the Only Thing Spreading". TEDx Venice Beach event focused on "Think Small". February 22. Full video available at www.youtube.com/watch?v=bj2n7IJyTRI

2014 Harrigan RJ, et al. "The Past, Present, and Future of Arboviruses." Center for World Health Speaker Series. UCLA School of Public Health, January 30th, Los Angeles, California.

2013 Harrigan RJ, "The Past, Present, and Future of a New World Emerging Infectious Disease." University of New Orleans Dept. of Biology Seminar Series, November 4th, New Orleans, Louisiana.

2012 Harrigan RJ, et al. "WNV: The Past, Present and Future of a New World Emerging Infectious Disease." UCLA Medical School Fall 2012 Education Seminar, October 13th, Los Angeles, California.

2012 Harrigan RJ, "Understanding transmission dynamics of West Nile virus in Southern California." Los Angeles County Department of Public Health, October 25th, Los Angeles, California.

2012 Harrigan RJ, et al. "Maximizing Evolutionary Potential Across a Southern California Urban Landscape." 2012 US-IALE conference, Newport, Rhode Island.

2011 Harrigan, RJ, "The Past, Present, and Future of West Nile Virus." 2011 Global Health Awareness Week, UCLA Medical School Seminar, February 7th, Los Angeles, California.

2011 Harrigan RJ, et al. "Economy as a Predictor of West Nile Virus". 2011 AMCA Annual Meeting, Anaheim, California.

2009 Harrigan RJ, et al. "Socioeconomic factors best explain the prevalence of West Nile virus in a local hotspot." 2009 EEID Meeting, Park City, Utah.

2008 Harrigan RJ, et al. "Temporal patterns and ecological predictors of West Nile virus." 2008 AOU Meeting, Portland, Oregon.

2007 Harrigan RJ, et al. "Determining the effects of bird migration and anthropogenic change on the distribution and transmission of avian influenza." 2007 EEID Meeting, Albuquerque, New Mexico.

2005 Harrigan RJ, and M Sorenson. "Examining causes of paraphyly in the Mallard complex." 2005 Evolution Meeting, Fairbanks, Alaska.

2003 Harrigan RJ, and M Sorenson "Asymmetrical hybridization in Black Ducks (Anas rubripes) and Mallards (Anas platyrhynchos)." Delta Waterfowl Student Seminars, Minnedosa, Manitoba

2002 Harrigan R, and M Sorenson "Asymmetrical hybridization in Black Ducks (Anas rubripes) and Mallards (Anas platyrhynchos)." Third North American Ornithological Conference, New Orleans, Louisiana.

2002 Harrigan, RJ, and M Sorenson "Population Genetics, Phylogeography, and Systematics of the Mallard (Anas platyrhynchos) and American Black Duck (Anas rubripes)." Delta Waterfowl Student Seminars, Minnedosa, Manitoba.

2000 Harrigan RJ, Guillot D, Hersek M, and F. Wasserman "Cowbird Parasitism of Ovenbirds in Suburban Forest Fragments." Boston University Graduate Student Scientific Meeting.

SCIENTIFIC ASSOCIATIONS:

2010-present. AMCA (American Mosquito Control Association)

2005-present. Society of Systematic Biologists

2000-present. Sigma Xi (full member)