

KEVIN P. OH, PhD *Curriculum Vitae*

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RESEARCH AREAS & EXPERTISE

conservation & population genetics • genomics • bioinformatics • quantitative genetics
evolutionary ecology • *de novo* genome assembly & annotation

EDUCATION & ACADEMIC APPOINTMENTS

- 2014 – 2017 Mendenhall Research Fellow, Fort Collins Science Center, U.S. Geological Survey. Supervisors: S. J. Oyler-McCance & C. L. Aldridge
- 2009 – 2014 Postdoctoral Research Associate, Department of Neurobiology and Behavior, Cornell University. Mentor: K. L. Shaw
- 2003 – 2009 *Ph.D.*, Department of Ecology and Evolutionary Biology, University of Arizona. Advisor: A. V. Badyaev
- 1997 – 2001 *B.A.* with Honors, Biology & Environmental Studies, minor in Asian Studies, *cum laude*, Bowdoin College. Advisor: N. T. Wheelwright

EMPLOYMENT

- 2018 – present Biologist, National Wildlife Research Center, U.S. Department of Agriculture APHIS – Wildlife Services, Fort Collins, CO
- 2012 Lecturer, Dept. Neurobiology & Behavior, Cornell University, Ithaca, NY
- 2005 – 2008 Graduate Research Associate, University of Arizona, Tucson, AZ
- 2004 – 2009 Graduate Teaching Associate, University of Arizona, Tucson, AZ
- 2001 – 2003 High School Biology & Chemistry Teacher, Hyde School, Bath, ME
- 2002, 2003 Field Research Technician, Bowdoin Scientific Station, Kent Island, NB
- 2001 Field Research Technician, Hubbard Brook Experimental Forest, NH
- 2000 Summer Research Fellow, Bowdoin Scientific Station, Kent Island, NB

SCIENTIFIC PUBLICATIONS

(number of citations to date = 726, h-index = 13)

Forthcoming

- Oh, K. P.**, Shiels, A. B., Shiels L., Blondel, D. V., Campbell, K. J., Saah, J. R., Lloyd, A. L., Thomas, P., Gould, F., Abdo, Z., Godwin, J. R., and A. J. Piaggio. Population genomics of invasive island rodent populations: prospects for spatially limited synthetic gene drive. *In prep*
- Oh, K. P.**, and K. L. Shaw. Axes of multivariate sexual signal divergence among incipient species: concordance with selection, genetic variation, and phenotypic plasticity. *In prep*
- Sudweeks, J., Hollingsworth, B., Blondel, D. V., Campbell, K. J., Dhole, S., Eisemann, J. D., Edwards, O., Godwin, J., Howald, G. R., **Oh, K. P.**, Piaggio, A. J., Prowse, T. A. A., Ross, J. V., Saah, J. R., Shiels, A. B., Thomas, P., Vella, M. R., Gould, F., and A. L. Lloyd. Locally fixed alleles: a method to localize gene drive to island populations. *In revision*
- Blankers, T., **Oh, K. P.**, and K. L. Shaw. Parallel genomic architecture underlies repeated sexual signal divergence in Hawaiian *Laupala* crickets. *In revision*
- Godwin, J., Serr, M., Barnhill-Dilling, S. K., Blondel, D., Brown, P., Campbell, K., Delborne, J., Prowse, T., **Oh, K. P.**, Saah, J., and P. Thomas. Rodent gene drives for conservation: opportunities and data needs. *In review*

- Clark, L., Eisemann, J., Godwin, J., Horak, K., **Oh, K. P.**, O'Hare, J., Piaggio, A. J., Pepin, K., and E. Ruell. Invasive species control and resolution of human-wildlife conflict: a framework for chemical and genetically-based management methods. In D. L. Hawksworth, M. P. de Miranda, and A. Chaurasia (Eds.), *GMOs: Implications for Biodiversity Conservation and Ecological Processes*. Springer. *In review*
- Teem, J., Descamps, S., Edwards, O., Gemmell, N., Schill, D., Thomas, P., Piaggio, A. J., Harvey-Samuel, T., Smith, T., **Oh, K. P.**, Alphey, L., Campbell, K., and M. Edgington. Genetic biocontrol for invasive species. *In prep*
- Shiels, A. B., Shiels, L., Nellis, D., Blondel, D. V., **Oh, K. P.**, Lombard, C. D., McKinley, A. S., and Z. Hillis-Star. Post-hurricane invasive rodent presence on offshore islands, U.S. Virgin Islands. *In prep*

Journal Articles

- Zimmerman, S., **Oh, K. P.**, Cornman, R. S., Aldridge, C. L., and S. J. Oyler-McCance. 2019. Investigation of local adaptation in Gunnison sage-grouse populations. *Evolutionary Applications* doi:10.1111/eva.12825 *In press*
- Oh, K. P.**, Aldridge, C. L., Forbey, J. S., Dadabay, C. Y., and S. J. Oyler-McCance. 2019. Conservation genomics in the sagebrush sea: population divergence and adaptive metabolic variation in sage-grouse (*Centrocercus* spp.). *Genome Biology and Evolution* 11(7): 2023–2034.
- Blankers, T., **Oh, K. P.**, and K. L. Shaw. 2018. The genetics of behavioral isolation in an island system. *Genes* 9(7): 346.
- Blankers, T., **Oh, K. P.**, Bombarely, A., and K. L. Shaw. 2018. The genomic architecture of a rapid island radiation: recombination rate variation, chromosome structure, and genome assembly of the Hawaiian cricket *Laupala*. *Genetics* 209(4): 1329–1344.
- Oyler-McCance, S. J., **Oh, K. P.**, Langin, K. M., and C. L. Aldridge. 2016. A field ornithologist's guide to genomics: practical considerations for ecology and conservation. *The Auk* 133(4): 626-648.
- Oh, K. P.** and K. L. Shaw. 2013. Multivariate sexual selection in a rapidly evolving speciation phenotype. *Proceedings of the Royal Society B—Biological Sciences* 280: 20130482.
- Oh, K. P.**, Conte, G. and K. L. Shaw. 2013. Founder effects and the evolution of asymmetrical sexual isolation in a rapidly-speciating clade. *Current Zoology* 59: 230-238.
- Oh, K. P.**, Fergus, D. J., Grace, J. L. and K. L. Shaw. 2012. Interspecific genetics of speciation phenotypes: song and preference coevolution in Hawaiian crickets. *Journal of Evolutionary Biology* 25: 1500-1512.
- Shaw, K. L., Ellison, C. K., **Oh, K. P.** and C. Wiley. 2011. Pleiotropy, “sexy” traits, and speciation. *Behavioral Ecology* 22: 1154-1155.
- Oh, K. P.** 2011. Inclusive fitness of ‘kissing cousins’: new evidence of a role for kin selection in the evolution of extra-pair mating in birds. *Molecular Ecology* 20: 2657-2659.
- Oh, K. P.** and A. V. Badyaev. 2010. Structure of social networks in a passerine bird: consequences for sexual selection and the evolution of mating strategies. *American Naturalist* 176: E80-E89.
- Stein, L. R., **Oh, K. P.** and A. V. Badyaev. 2010. Fitness consequences of male provisioning of incubating females in a desert passerine bird. *Journal of Ornithology* 151: 227-234.
- Oh, K. P.** and A. V. Badyaev. 2009. Isolation and characterization of seventeen microsatellite loci for the house finch (*Carpodacus mexicanus*). *Molecular Ecology Resources* 9: 1029-1031.
- Oh, K. P.** and A. V. Badyaev. 2008. Evolution of adaptation and mate choice: Parental relatedness affects expression of phenotypic variance in a natural population. *Evolutionary Biology* 35: 111-124.

- Badyaev, A. V., Young, R. L., **Oh, K. P.**, and C. Addison. 2008. Evolution on a local scale: Developmental, functional, and genetic bases of divergence in bill form and associated changes in song structure between adjacent habitats. *Evolution* 62: 1951-1964.
- Badyaev, A. V., and **K. P. Oh**. 2008. Environmental induction and phenotypic retention of adaptive maternal effects. *BMC Evolutionary Biology* 8:3 doi:10.1186/1471-2148-8-3.
- Lindstedt, E., **Oh, K. P.**, and A. V. Badyaev. 2007. Ecological, social, and genetic contingency of extrapair behavior in a socially monogamous bird. *Journal of Avian Biology* 38: 214-238.
- Oh, K. P.** and A. V. Badyaev. 2006. Adaptive genetic complementarity in mate choice coexists with preference for elaborate sexual traits. *Proceedings of the Royal Society B—Biological Sciences* 273: 1913-1919.
- Badyaev, A. V., Hamstra, T. L., **Oh, K. P.**, and D. Acevedo Seaman. 2006. Sex-biased maternal effects reduce ectoparasite-induced mortality in a passerine bird. *Proceedings of the National Academy of Sciences of the United States* 103: 14406-14411.
- Badyaev, A. V., **Oh, K. P.**, and R. Mui. 2006. Evolution of sex-biased maternal effects in birds: II. Contrasting sex-specific oocyte competition in native and recently established populations. *Journal of Evolutionary Biology* 19: 909-921.

Book Chapters

- Oyler-McCance, S. J., **Oh, K. P.**, Zimmerman, S., and C. L. Aldridge. 2019. Genomics of Sage-grouse (Invited Chapter). In P. A. Hohenlohe (Ed.), *Population Genomics: Wildlife*. Springer. *In press*

Theses

- Oh, K. P.** 2009. Evolutionary dynamics of sexual traits: demographic, behavioral, and genetic contingencies. PhD dissertation, University of Arizona, Tucson, AZ.
- Oh, K. P.** 2001. The influence of age and sex on territory size in Savannah sparrows (*Passerculus sandwichensis*). Undergraduate honors thesis, Bowdoin College, Brunswick, ME.

RESEARCH MEDIA COVERAGE (*selected*)

Nature • *Science* • *New York Times* • *Current Biology* • *Smithsonian Magazine* • *Scientific American* • *NSF.gov* • *ScienceNOW* • *Quirks & Quarks (CBC Radio Interview)* • *Arizona Public Radio* • *Arizona Daily Star* • *LiveScience* • *ScienceDaily* • *Discovery Channel*

TEACHING EXPERIENCE

Lecturer, Cornell University

Concepts in Sexual Selection Theory, 2012, Developed curriculum and taught course for advanced undergraduate and graduate students.

Graduate Teaching Associate, University of Arizona

Animal Behavior (69 students), 2008

Vertebrate Physiology (~30 students), 2006, 2008, 2009

Evolution of Animal Form & Function (35 students), 2004

Guest Lecturer

Sex, Genes and Evolution, Cornell University, 2012

Evolution of Animal Form & Function, 2004 – 2005, University of Arizona

Ornithology, University of Arizona, 2007

High School Teacher, Hyde School, Bath, ME

Biology, Biology II, and Chemistry: Developed curriculum and taught ~90 students in 3 sections per semester, served as faculty advisor for 10 students per year, 2001 – 2003.

Assistant Dean of Students, 2002 – 2003

Mentoring and Supervising

Tucson High Magnet School: P. Gelb, 2003 – 2004, C. Hill-Kiwak, 2007

B.Sc./M.Sc. Students: E. Lindstedt, 2004 (*currently lecturer, Univ. Ohio*), J. Merkle, 2004 (*currently faculty, Univ. WY*), T. Hamstra, 2008 (*M.Sc.*), T. Kodera, 2005 (*currently PhD student, Univ. California*) L. Stein, 2009 (*currently faculty, Univ. OK*)

GRANTS, AWARDS & HONORS

Office of the Center Director Research Funding Program: *Leveraging genomic resources to investigate local adaptive variation in sage-grouse* (\$60,141), U.S. Geological Survey, 2016

Office of the Center Director Research Funding Program: *Application of genomic tools to evaluate adaptive variation in greater sage-grouse* (\$25,733), U.S. Geological Survey, 2015

Mendenhall Research Fellowship: *Climate change, land-use change, and species of conservation concern: application of novel genomic tools to understand species vulnerability and biological responses* (\$100,000), U.S. Geological Survey, 2014

Postdoctoral Travel Grant, Cornell Center for Comparative and Population Genomics, 2013

Outstanding Graduate Teaching Assistant, Department of Ecology & Evolutionary Biology, University of Arizona, 2008

Galileo Circle Scholar, College of Science, University of Arizona, 2007

Marcia Brady Tucker AOU Travel Award, 2005, 2008

International Behavioral Ecology Congress Travel Grant, 2008

North American Ornithological Societies Travel Award, 2006

James R. Silliman Memorial Research Award, 2004, 2005, 2006

EEB Small Research Grant, University of Arizona, 2004 – 2008

Graduate and Professional Student Council Travel Grant, 2005, 2008

University of Arizona Graduate College Fellowship, 2003 – 2004

Honorable Mention, NSF Graduate Research Fellowship, 2003, 2004

Dean's List, Bowdoin College, 1997 – 1999

SYMPOSIA AND INVITED SEMINARS

ILSI Research Foundation, Gene Drive Modeling Conference, Washington, DC, 2019

Avian Genomics Symposium, Plant & Animal Genome XXVII Conference, San Diego, CA, 2019

GBIRd Consortium Annual Meeting, Exmouth, WA, Australia, 2018

DARPA SafeGenes Review Meeting, Oracla, AZ, 2018

U.S. Environmental Protection Agency Biotech Products Community of Practice Seminar, 2018

The Wildlife Society's 24th Annual Conference (Invited Symposium), Albuquerque, NM, 2017

University of Wyoming, Department of Zoology & Physiology, Laramie, WY, 2017

Queen's University, Department of Biology, Kingston, ON, 2013

University of Rochester, Department of Biology, Rochester, NY, 2013

Vassar College, Department of Biology, Poughkeepsie, NY, 2013

Gettysburg College, Department of Biology, Gettysburg, PA, 2013

American Genetic Association President's Symposium, Cornell University, Ithaca, NY, 2013

Graduate Program in Organismic & Evolutionary Biology, University of Massachusetts, 2012

Smithsonian Conservation Biology Institute, Washington, DC, 2011

CONTRIBUTED SCIENTIFIC PRESENTATIONS*(selected, past 10 years)*

- Saah J. R., Piaggio A. J., **Oh K. P.**, Gould F., Campbell K., and G. Howald. 2019. Safeguarding gene drive research: measures to support responsible research using gene drives. International Society for Biosafety Research Meeting. Tarragona, Spain.
- Blankers, T., **Oh, K. P.**, and K. L. Shaw. 2019. Recipe for a rapid radiation: population divergence with repeated behavioral isolation through parallel genetic mechanisms. ESEB 2019 Congress, Turku, Finland.
- Oh, K. P.**, Piaggio, A. J., Z. Abdo. 2019. Population genomics of invasive island rodent populations: implications for conservation and genetic biocontrol. Plant & Animal Genome XXVII Conference, San Diego, CA.
- Oh, K. P.**, Aldridge, C. L., and S. J. Oyler-McCance. 2017. Genomic insights into neutral and adaptive variation in sage-grouse: implications for conservation and sagebrush habitat restoration. Great Basin Consortium Annual Meeting, University of Nevada, Reno, NV.
- Oh, K. P.**, Aldridge, C. L., and S. J. Oyler-McCance. 2016. Genomic insights into neutral and adaptive variation in sage-grouse: implications for ecology and conservation. 6th North American Ornithological Congress, Washington, DC.
- Xu, Mingzi, **Oh, K. P.**, and K. L. Shaw. 2016. Testing hypotheses for the genetic architecture underlying song-preference covariance in *Laupala* crickets. Joint Conference of the Society for the Study of Evolution and the American Society of Naturalists, Austin, TX.
- Oh, K. P.**, Aldridge, C. L., and S. J. Oyler-McCance. 2016. Sage-grouse management in the genomics age: insights into local genetic adaptation and population differentiation. Western Agencies Sage & Columbian Sharp-tailed Grouse Workshop, Lander, WY.
- Oh, K. P.**, Aldridge, C. L., and S. J. Oyler-McCance. 2016. The Gunnison Sage-Grouse Genome. Fourth Gunnison Sage-grouse Summit, Gunnison, CO.
- Oh, K. P.**, Aldridge, C. L., and S. J. Oyler-McCance. 2015. A hybrid *de novo* genome assembly for Gunnison sage-grouse yields insight into demographic history and genome evolution. 13th International Grouse Symposium, Reykjavik, Iceland.
- Oh, K. P.** and K. L. Shaw. 2013. Incipient speciation in a Hawaiian cricket: sexual trait divergence in relation to selection, G, and developmental plasticity, Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Snowbird, UT.
- Oh, K. P.** and K. L. Shaw. 2012. Intraspecific divergence of a multivariate sexual trait in Hawaiian crickets: Does G matter? 1st Joint Congress on Evolutionary Biology, Ottawa, ON, Canada.
- Oh, K. P.** and K. L. Shaw. 2012. Heterogeneous sexual selection and intraspecific divergence of a speciation phenotype. Speciation Symposium, Cornell University, Ithaca, NY.
- Oh, K. P.** 2011. Age-dependent female reproductive strategies in a passerine bird. Cooperation and Parental Care Symposium, Cornell Lab of Ornithology, Ithaca, NY.
- Oh, K. P.** and K. L. Shaw. 2011. Contrasting patterns of multivariate sexual selection in a rapidly-speciating cricket. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Norman, OK.
- Oh, K. P.** and K. L. Shaw. 2010. Divergent female preferences and the evolution of sexual isolation in Hawaiian crickets. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Portland, OR.
- Oh, K. P.** and A.V. Badyaev. 2009. Evolution of mate choice for genetic benefits in a passerine bird. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Moscow, ID.

PROFESSIONAL SERVICE AND OUTREACH

Organizer & Moderator, USGS Fort Collins Science Spring Seminar Series, 2015

National Science Foundation, External Reviewer, IOS Panel, 2012

Organizing Committee Member, Special Symposium on Cooperative Behavior and Parental Care, Cornell University, 2011

Sigma Xi Foundation, External Grant Reviewer for Student Grants, 2011, 2012, 2013

Expert reviewer for Global Invasive Species Database, IUCN Species Survival Commission

Ad hoc reviewer for:

PNAS • *American Naturalist* • *Evolution* • *Proceedings of the Royal Society B—Biological Sciences* • *Biology Letters* • *Journal of Evolutionary Biology* • *Journal of the Royal Society Interface* • *Behavioral Ecology* • *Molecular Ecology* • *Evolutionary Ecology* • *Functional Ecology* • *Evolutionary Biology* • *PLOS ONE* • *Ethology* • *Behavioral Ecology & Sociobiology* • *Animal Behaviour* • *Current Zoology* • *Molecular Ecology Notes* • *Condor* • *Wilson Bulletin*

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Society for the Study of Evolution • *American Society of Naturalists* • *International Society for Behavioral Ecology* • *American Ornithologists' Union* • *Society for Integrative and Comparative Biology* • *Sigma Xi Society*

TECHNICAL SKILLS & COMPETENCIES

Scientific Writing & Editing • Teaching/Course Development/Lecturing • Data Analysis & Statistics • Molecular Biology Laboratory • R/SAS/Python • Linux/PC/Mac

PROFESSIONAL REFERENCES

Dr Antoinette Piaggio, Research Scientist
U.S. Department of Agriculture
National Wildlife Research Center
Fort Collins, CO 8052
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e-mail: toni.j.piaggio@aphis.usda.gov

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U.S. Geological Survey
Fort Collins Science Center
Fort Collins, CO 80526
Tel: +1.970.226.9197
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Dr Cameron Aldridge, Research Scientist & Associate Professor
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