Robert R. Fitak, PhD

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Google Scholar Profile Fitak Lab website ResearchGate Profile GitHub Site

CURRENT POSITION

Assistant Professor; August 2019 – present
Department of Biology
Genomics and Bioinformatics Cluster
University of Central Florida

PREVIOUS POSITIONS

Postdoctoral Scientist; May 2015 – July 2019
Department of Biology, Duke University
PI: Dr. Sönke Johnsen
Project Title: "***Long-range Geomagnetic Navigation in Sea Turtles: An Interdisciplinary Approach to Localizing Magnetite-based Biological Magnetoreceptors***"

Postdoctoral Scientist; October 2013 – April 2015
Institut für Populationsgenetik (Institute for Population Genetics)
Veterinärmedizinische Universität Wien (Veterinary Medical University Vienna)
PI: Dr. Pamela Burger
Project Title: "***Detecting footprints of selection in Old World Camelids using genome sequencing***"

EDUCATION

PhD **University of Arizona**
Genetics, 2013
Ecology and Evolutionary Biology minor

Conservation genomics of the endangered Mexican wolf and de novo SNP marker development pumas using next-generation sequencing

Melanie Culver (chair), Phillip Hedrick, Michael Nachman, Giovanni Bosco, Steven Chambers

BS **The Ohio State University**
Cum Laude and with distinction in Molecular Genetics, 2006
Evolution, Ecology, and Organismal Biology minor

Analysis of the prevalence and diversity of rickettsial species found in Ohio Amblyomma americanum ticks, assessed by the analysis of the 17kDa surface antigen gene

Paul Fuerst (chair), Daryl Kelly, Glen Needham

PUBLICATIONS (* student mentee of R. Fitak)

Taboada C, Faivovich J, Brunetti AE, Lyra ML, **Fitak RR**, Faigon A, Ron SR, Lagorio MG, Haddad CFB, Lopes NP, Johnsen S, Chemes LB, Bari SE. (submitted) Multiple origins of green coloration in frogs mediated by a novel biliverdin-binding serpin. *Proceedings of the National Academy of Sciences U.S.A.*

Fitak RR, Mohandesan E, Corander J, Yadamsuren A, Chuluunbat B, Abdelhadi O, Raziq A, Nagy P, Walzer C, Faye B, and Burger PA. (in revision) Genomic signatures of domestication in Old World camels. *Communications Biology*.

Ernst DA, **Fitak RR**, Schmidt M, Derby CD, Johnsen S, and Lohmann KJ. (in revision) Pulse magnetization elicits differential gene expression in the spiny lobster central nervous system. *Journal of Comparative Physiology A*.

Fitak RR, Wheeler BR, and Johnsen S. (in revision) Effect of a magnetic pulse on magnetic orientation behavior in the rainbow trout (*Oncorhynchus mykiss*). *Behavioral Processes*.

Fitak RR. (in revision) OptM: estimating the optimal number of migration edges on population trees using Treemix. *Journal of Heredity*.

Fitak RR, Brothers JR, and Johnsen S. (in revision) The geomagnetic biogeography of navigating species. *Functional Ecology*.

Antonacci R, Linguiti G, Burger PA, Castelli V, Pala A, **Fitak R**, Massari S, Ciccarese S. (in press). Comprehensive genomic analysis of the dromedary T cell receptor gamma (TRG) locus and identification of a functional TRCC5 cassette. *Developmental and Comparative Immunology*.

Granger J, Walkowicz L, **Fitak R**, and Johnsen S. (in press) Gray whales strand more often on days with increased levels of atmospheric radio-frequency noise. *Current Biology*.

Ochoa A, Onorato DP, **Fitak RR**, Roelke-Parker ME, Culver M. (2019) *De novo* assembly and annotation from parental and F1 puma genomes of the Florida panther genetic restoration program. *G3 (Bethesda)*. 9:3531-3536.

- Featured in **UCF News** (Wells, Robert, Oct 3, 2019)
- Featured in **OSU News** (Crane, Misti, Oct 3, 2019)
- Featured by **WFME 90.7 Orlando NPR** (Green, Amy, Oct 8, 2019)
- Featured in **Tampa Bay Times** (Pittman, Craig, Oct 9, 2019)
- Featured by **The Wildlife Society** (Kobilinsky, Dana, Oct 21, 2019)

Favia M, **Fitak RR**, Guerra L, Pierri CL, Faye B, Oulmouden A, Burger PA, Ciani E. (2019). Beyond the big five: investigating myostatin structure, polymorphism and expression in *Camelus dromedarius*. *Frontiers in Genetics*. 10:502.

Ritschard EA, **Fitak RR**, Simakov O, and Johnsen S. (2019) Genomic signatures of G-protein-coupled receptor expansions reveal functional transitions in the evolution of cephalopod signal transduction. *Proceedings of the Royal Society of London. Series B, Biological sciences*. 286(1897): 20182929.

Fitak RR, ... Pecon-Slattery, J. (2019) The expectations and challenges of wildlife disease research in the era of genomics: forecasting with a horizon scan. *Journal of Heredity*. 110(3):261-274.

Schweikert LE, **Fitak RR**, Caves EM, Sutton TT, and Johnsen S. (2018) Spectral sensitivity among ray-finned fishes: ecology, diversity, and shared descent. *Journal of Experimental Biology*. 221(23): jeb189761.

Fitak RR, Caves EM, and Johnsen S**.** (2018) Orientation in pill bugs: an interdisciplinary activity to engage students in concepts of biology, physics, and circular statistics. *American Biology Teacher*. 80(8): 608-618.

Fitak RR and Johnsen S. (2018) Green sea turtle (*Chelonia mydas*) population history indicates important demographic changes near the mid-Pleistocene transition. *Marine Biology.* 165(7): 110.

Fitak RR, Schweikert LE, Wheeler BR, Ernst DA, Lohmann KJ, and Johnsen S. (2018) Near absence of differential gene expression in the retina of rainbow trout after exposure to a magnetic pulse: Implications for magnetoreception. *Biology Letters*. 14(6): 20180209.

Schweikert LE, **Fitak RR**, Johnsen S. (2018) *De novo* transcriptomics reveal distinct phototransduction signaling components in the retina and skin of the color changing vertebrate, *Lachnolaimus maximus*. *Journal of Comparative Physiology A*. 204(5): 475-485.

- Featured in **Science News** (Mar 13, 2018)
- Featured in **Duke Today** (Smith, Robin A., Mar 12, 2018)
- Featured in **The Talking Democrat** (Frantz, Carl, Mar 15, 2018)

Fitak RR, Rinkevich S, and Culver M. (2018) Genome-wide analyses of SNPs is consistent with no domestic dog ancestry in the endangered Mexican wolf (*Canis lupus baileyi*). *Journal of Heredity*. 109(4): 373-383.

- Featured in **UA News** (Pigott, Stacy, Jun 20, 2018)
- Featured by **The Wildlife Society** (Frey, David, Jul 2, 2018)
- Featured by **NPR: KJZZ, Phoenix** (Gerbis, Nicholas, Jul 9, 2018; http://science.kjzz.org/content/667726/ua-study-mexican-wolves-did-not-interbreed-dogs)

*Arniella MB, **Fitak RR**, and Johnsen S. (2018) Unmapped sequencing reads identify additional candidate genes linked to magnetoreception in trout. *Environmental Biology of Fishes.* 101(5): 711-721.

Fitak RR and Johnsen S**.** (2017) Bringing the statistical analysis of animal orientation full circle: model-based approaches with maximum likelihood**.** *Journal of Experimental Biology* 220(21): 3878-38882.

- See associated R package 'CircMLE' available in CRAN

Mohandesan E, **Fitak RR**, Corander J, Yadamsuren A, Chuluunbat B, Abdelhadi O, Raziq A, Nagy P, Stalder G, Walzer C, Faye B, and Burger PA. (2017) Mitogenome sequencing in the genus *Camelus* reveals evidence for purifying selection and long-term divergence between wild and domestic Bactrian camels. *Scientific Reports* 7(1): 9970.

Ohkura M, **Fitak RR**, Wisecaver JH, DeBlasio D, Niazi F, Egholm M, Rounsley SD, Kodira CD, and Orbach MJ. (2017) Genome sequence of *Ophidiomyces ophiodiicola*, an emerging fungal pathogen of snakes. *Genome Announcements* 5(30): e00677-17.

Fitak RR, Wheeler BR, Ernst DA, Lohmann KJ, and Johnsen S. (2017) Candidate genes mediating magnetoreception in rainbow trout (*Oncorhynchus mykiss*). *Biology Letters* 13(4): 20170142.

- Featured in **Nature** in the *Research Highlights* section (***Nature*** 545:7652, April 26, 2017)
- Featured in **Sierra** (Daley, Jason, May 28, 2017)
- Featured in **Duke Today** (Smith, Robin A., April 26, 2017)
- Featured in the **Herald Sun** (Gronberg, Ray, April 30, 2017)

Ochoa A, Onorato DP, **Fitak RR**, Roelke-Parker ME, and Culver M. (2017) Evolutionary and functional mitogenomics: presence of potential deleterious SNPs in Florida panthers prior to and as a consequence of the introduction of Texas pumas. *Journal of Heredity* 108(4): 449-455.

*Erwin JA, **Fitak RR**, Dwyer JF, and Culver M. (2016) Molecular detection of bacteria in the families *Rickettsiaceae* and *Anaplasmataceae* in northern crested caracaras (*Caracara cheriway*). *Ticks and Tick-Borne Diseases* 7(3): 470-474.

Plasil M, Mohandesan E, **Fitak RR**, Musilova P, Kubickova S, Burger PA, and Horin P. (2016) The major histocompatibility complex in Old World camelids and low polymorphism of its class II genes. *BMC Genomics* 17(1): 167.

Fitak, RR. (2016) Wild felid genomics: where are we now? *Wild Felid Monitor* 9(1): 13.

Fitak RR, Mohandesan E, Corander J, and Burger PA. (2016) The *de novo* genome assembly and annotation of a female domestic dromedary of North African origin. *Molecular Ecology Resources* 16(1): 314-324.

Fitak RR, Naidu A, Thompson R, and Culver M. (2016) A new panel of SNP markers for the individual identification of North American pumas (*Puma concolor*). *Journal of Fish and Wildlife Management* 7(1): 13-27.

Bruford MW, … **Fitak R**, et al. (2015) Prospects and challenges for the conservation of farm animal genomic resources, 2015-2025. *Frontiers in Genetics* 6: 314.

Ruiz E, Mohandesan E, **Fitak RR**, and Burger P. (2015) Diagnostic single nucleotide polymorphism markers to identify hybridization between dromedary and Bactrian camels. *Conservation Genetics Resources* 7(2): 329-332.

Muzzachi S, Burger P, **Fitak R**, Oulmouden A, Cherifi Y, Yahyaoui H, Zayed MA, Lacalandra GM, Faye B, and Ciani E. (2015) Combined Sanger and NGS sequence analysis of the myostatin gene (mstn) in the *Camelus dromedarius* species. *Special Issue of the Scientific and Practical Journal Veterinariya* 42(2): 353-355.

Antonacci R, **Fitak R**, Burger P, Castelli V, Ciani E, and Ciccarese S. (2015) Functional genomics and evolution of the gamma/delta T cell receptor loci in old world camels. *Special Issue of the Scientific and Practical Journal Veterinariya* 42(2): 344-346.

Fitak RR, Mohandesan E, and Burger PA. (2015) Complete genome re-sequencing reveals patterns of domestication in old world camelids. *Special Issue of the Scientific and Practical Journal Veterinariya* 42(2): 346-348.

Fitak RR, Kelly DJ, Fuerst PA, et al. (2014) The prevalence of rickettsial and ehrlichial organisms in *Amblyomma americanum* ticks collected from Ohio and surrounding areas between 2000 and 2010. *Ticks and Tick-Borne Diseases* 5(6): 797-800.

Fitak RR, Koprowski JL, and Culver M (2013) Severe reduction in genetic variation in a montane isolate: the endangered Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*). *Conservation Genetics* 14(6): 1233-1241.

Andrew DR, **Fitak RR**, Munguia-Vega A, Racolta A, Martinson V, and Dontsova K. (2012) Abiotic factors shape microbial diversity in Sonoran Desert soils. *Applied Environmental Microbiology* 78(21): 7527.

Naidu A, **Fitak RR**, Munguia-Vega A, and Culver M. (2012) Novel PCR primers for complete mitochondrial cytochrome b gene sequencing in mammals. *Molecular Ecology Resources* 12: 191-196.

Culver M, **Fitak RR**, and Herrmann H. (2010) Genetic Methods for Biodiversity Assessment. In Anne Magurran and Brian McGill (Eds.), *Biological Diversity: frontiers in measurement and assessment*. Oxford University Press: USA, 2011, p208-218.

Loftis AD, Mixson TR, Stromdahl EY, Yabsley MJ, Garrison LE, Williamson PC, **Fitak RR**, Fuerst PA, and Blount KB. (2008) Geographic distribution and genetic diversity of the *Ehrlichia* sp. from Panola Mountain. *BMC Infectious Diseases* 8: 54.

PUBLICATIONS in prep

Fitak RR, Meyers T, and Culver M. (in prep.) Concurrent patterns of vicariance in mussels of the genus *Anodonta* from Mexico and the western United States and implications for their conservation. *Aquatic Conservation: Marine and Freshwater Ecosystems*.

Fitak RR, Rinkevich S, and Culver M. (in prep.) Measuring inbreeding in wildlife populations using a large number of genetic markers: a case study in the endangered Mexican wolf (*Canis lupus baileyi*).

Fitak RR, Rinkevich S, and Culver M. (in prep.) Identifying detrimental variation in captive zoo populations: an example using the Mexican wolf (*Canis lupus baileyi*).

TECHNICAL DOCUMENTS AND REPORTS

Erwin JA**, Fitak RR**, Meyers T, and Culver M. (2016) Genetic analysis of *Anodonta californiensis* from the Río Bavispe: a recommendation for reintroduction into the San Bernardino River subbasin**.** Final report for the Arizona Game and Fish Department,Tucson, AZ.

Naidu A, **Fitak R**, and Culver M. (2014) Landscape genetics of mountain lions (*Puma concolor*) in southwestern Arizona. Final report to the Arizona Game and Fish Department Habitat Partnership Committee, Project number HPC-09-406, Tucson, AZ.

Naidu A, **Fitak R**, and Culver M. (2014) Data sharing for wildlife management: the puma genetic database. Final report to the Arizona Game and Fish Department Habitat Partnership Committee, Project number HPC- 10-705, Tucson, AZ.

Fitak RR, Rinkevich S, and Culver M. (2013) The effects of extirpation and reintroduction on the Mexican wolf (*Canis lupus baileyi*) through genome-wide association. Final report for the U.S. Fish and Wildlife Service, Albuquerque, NM.

Culver M, **Fitak RR**, and Meyers T. (2011) California Floater Genetics. Final report for the Arizona Game and Fish Department Heritage Program. Tucson, AZ.

Fitak RR and Culver M. (2009) Mount Graham red squirrel genetic analysis to aid in formation of a captive breeding population. Final report for the U.S. Fish and Wildlife Service, Tucson, AZ.

AWARDS/FELLOWSHIPS/GRANTS

Duke Postdoctoral Professional Development Award.....2018
Awarded $1,000 to attend the 4th Annual Summer Institute in Statistics for Big Data workshop at the University of Washington for specific training in "Supervised Methods for Statistical Machine Learning"

Duke Center for Genomic and Computational Biology Voucher Award.....2018
Awarded $5,547 in sequencing costs for a pilot project to sequence and assembly the American shad (*Alosa sapidissima*) genome as a resource for sensory biologists

European Science Foundation Exchange Grant.....2014
Awarded €3500 for an exchange research visit in the lab of Dr. Michael Bruford, Cardiff University, UK, as part of the Farm Animal Genomic Resources Program

Arizona Game and Fish Department Heritage Fund.....2013
Awarded $50,000 to use high-throughput DNA capture techniques for a phylogeographic analysis of current and museum samples of black-tailed prairie dogs in the southwestern U.S.

NSF-IGERT Fellowship in Comparative Genomics, U. of Arizona.....2008 – 2012

Four-time recipient of the competitive National Science Foundation fellowship to train graduate students in evolutionary, functional, and computational genomics. ($30,000/year stipend)

Arizona Game and Fish Dept. Habitat Partnership Program.....2010
Awarded $15,000 for developing SNPs and a genetic database for pumas

U.S. Fish and Wildlife Service Science Support Partnership 2009
Awarded $29,869 for research on Mexican wolf genomics

Science Foundation Arizona Fellowship, U. of Arizona.....2008 – 2009
A competitive fellowship in the sciences for Arizona graduate students ($30,000/year stipend)

Herbert E. Carter Travel Award, U. of Arizona 2011
Competitive travel award for students in the amount of $600

Graduate and Professional Student Council Award, U. of Arizona 2010, 2011
Two time recipient of this competitive travel award in the amount of $500 each

REVIEWER for the FOLLOWING JOURNALS/ORGANIZATIONS

Conservation Genetics
Graduate Women in Science
Mammalian Biology
Marine Mammal Science
Ticks and Tick-Borne Diseases
Journal of Threatened Taxa
Journal of Heredity
Environmental Biology of Fishes
U.S. Fish and Wildlife Service
Vector-Borne and Zoonotic Diseases
American Biology Teacher
Frontiers in Genetics
Behavioral Ecology and Sociobiology
PeerJ
Environmental Health Insights
Polish Academy of Sciences

SERVICE AS A COMMITTEE MEMBER

June Ordoñez, M.S. - Molecular Ecology and Evolution Laboratory, University of the Philippines.....2018
Jesse Granger, PhD student – Department of Biology, Duke University.....TBD
Pavithiran Amirthalingam, PhD student – Department of Biology, University of Central Florida.....TBD
Johnny Konvalina, PhD student – Department of Biology, University of Central Florida .....TBD
Samuel Greaves, PhD student – Department of Biology, University of Central Florida .....TBD
Katherine Martin, PhD student – Department of Biology, University of Central Florida.....TBD

SERVICE TO PROFESSION

Morris Animal Foundation: Wildlife Scientific Advisory Board Member .....2019 – 2023
Topic Editor: Genomics of Disease in Wildlife – *Frontiers in Ecology and Evolution*.....2020
Newsletter Committee member for the *Wild Felid Monitor*..... 2013 – present
Mexican wolf Species Survival Plan contributor 2014

SERVICE TO UNIVERSITY

Faculty Scientific Computing Working Group (UCF).....2019 – 2020
Academic Program Review student representative, Genetics IDP (UA) 2011

SERVICE TO DEPARTMENT

Undergraduate Course Committee (UCF) ..... 2019 – 2020

SERVICE TO COMMUNITY

Competition Judge: Southern Arizona Regional Science and Engineering Fair ..... 2008 – 2013
BioBlitz Educator: Sonoran Desert wildlife, conservation genetics, and herpetology 2011
Earth Day Speaker at Borton Primary Magnet School: Tucson, AZ ..... 2009 – 2012

TEACHING EXPERIENCE

Instructor: PCB4575/5688 (Wildlife Genomics), University of Central Florida 2019
Instructor-of-record for a mixed (graduate & undergraduate) course on current topics in wildlife genomics, including lectures, paper discussions, and computer labs.

Instructor: Genomics of Diseases in Wildlife, Colorado State University ..... 2017 – 2019
Invited instructor and organizer for the workshop sponsored by CSU and the Smithsonian Conservation Biology Institute (workshop website: http://gdwworkshop.colostate.edu). Taught course concepts in computational genomics through lectures, hands-on activities and training tutorials (see workshop materials co-authored at https://github.com/stenglein-lab/2017_GDW).

Guest Instructor: Bio427S (Current Topics in Sensory Biology), Duke University 2017
Led an introduction and paper discussion on magnetoreception for the undergraduate and graduate students.

Guest Instructor: Bio180S (Sensory Biology), Duke University 2017
Introduced undergraduate students to magnetoreception and developed a laboratory exercise to examine magnetoreception in pill bugs

Mentor for Monica Arniella in the MUSER Program ..... 2016 – 2017
Mentored this undergraduate student in a computational genomics project for the Matching Undergraduates to Science and Engineering Research (MUSER) program.

Teaching Associate: Bio181L (Biology Laboratory), U. of Arizona 2012
Introductory laboratory for biology students which includes short lectures followed by laboratory experiments. Taught 2 sections, ~22 students each

Mentor for Sergio Redondo in the McNair Scholars Program 2012
Mentored this undergraduate student in a summer research project as part of the McNair Scholars Program.

Guest Instructor: WFSC 444 (Wildlife Management – Mammals) ..... 2009 – 2012
Taught a one day lab in conservation genetics for wildlife management
Instructor: Dr. John Koprowski

Mentor for Bianca Judy in the City High Internship Program ..... 2011 – 2012
A program for high school seniors to complete a research project

Mentor for Connor Davey in the KEYS Summer Internship Program 2011
An opportunity for motivated Arizona high school students with a strong interest in the biosciences to work with top researchers in University of Arizona laboratories.

Invited Lecturer: GENE 570 (Conservation Genetics), U. of Arizona 2010, 2011

Taught the sections "*Conservation and Population Genomics*" Instructor:
Dr. Melanie Culver

Invited Lecturer: MCB 304 (Molecular Genetics), U. of Arizona.....2011
Taught "*Conservation Genetics and Genomics: an Example Using the Mexican Wolf*"
Instructor: Dr. Giovanni Bosco

Invited Lecturer: 9th Grade Biology, Flowing Wells High School, Tucson, AZ.....2010
Taught "*Evolution and Herpetology*" Instructor: Mrs. Ishraq Alfatesh

APPEARANCES AT PROFESSIONAL CONFERENCES

Society for Integrative & Comparative Biology, National Meeting.....2020
Austin, TX
Presentation: *"Time-dependent characterization of candidate magnetoreception genes in the brain of Chinook salmon"*

The 10th RIN (Royal Institute of Navigation) Conference on Animal Navigation.....2019
Royal Holloway College, UK
Presentation: "*The molecular signatures of magnetite-based magnetoreception: evidence from transcriptomics*"

The Duke UPE/TriCEM Symposium - Disease and Health: Ecological perspectives from individuals to ecosystems.....2018
Durham, NC
Presentation: "*The expectations and challenges of wildlife disease research in the era of genomics: Forecasting with a horizon scan*"

Invited (Plenary) Speaker: Genetics IDP Annual Retreat at the University of Arizona.....2018
Tucson, AZ
Presentation: "*From conservation to sensory biology: an interdisciplinary walk*"

Society for Integrative & Comparative Biology, National Meeting.....2018
San Francisco, CA
Presentation: "*Candidate magnetoreception genes in the brain and retina of trout"*

Society for Integrative & Comparative Biology, Southeast Regional Meeting.....2016
Durham, NC
Presentation: "*The effect of geomagnetic field reversals on the demographic history of navigating species: a case study in green sea turtles"*

Duke Biology Department Retreat.....2016
Beaufort, NC
Presentation: "*Navigating the earth using magnetic fields: Identifying genes linked to a functional magnetoreceptor"*

Plant & Animal Genome Conference XXIV.....2016
San Diego, CA
Presentation: "*Genomic footprints of selection under domestication in Old World camelids"*

2014 Mexican Wolf SSP Annual Meeting.....2014
St. Louis, MO
Presentation: "*Conservation genomics of the endangered Mexican wolf*"*"*

European Science Foundation: Livestock Genomic Resources in a Changing World 2014
Cardiff, UK
Presentation: "*Complete genome re-sequencing reveals patterns of domestication in Old World camelids"*

Society for Molecular Biology and Evolution Annual Meeting 2014
San Juan, PR
Presentation: "*Complete genome re-sequencing reveals patterns of domestication in Old World camelids"*

46th Joint Annual Meeting of the AZ/NM Chapters of the Wildlife Society 2013
Albuquerque, NM
Presentation: "*PumaPlex: A high-throughput SNP assay for the genetic monitoring of pumas"*

The Wildlife Society Annual Conference 2012
Portland, OR
Presentation: "*Conservation genomics of the endangered Mexican wolf*"

25th Meeting of the American Society for Rickettsiology 2012
Park City, UT
Presentation: "*A longitudinal study of the prevalence of rickettsial and ehrlichial endosymbionts in Ohio Amblyomma americanum ticks"*

American Genetic Association Annual Symposium: Recombination 2012
Durham, NC
Poster: "*Inbreeding and haplotype structure in the endangered Mexican Wolf*"

American Genetic Association Annual Symposium: Genomics and Biodiversity 2011
Guanajuato, Mexico
Poster: "*Conservation genomics of the endangered Mexican wolf*"

44th Joint Annual Meeting of the AZ/NM Chapters of the Wildlife Society 2011
Pinetop, AZ
Presentation: "*A genome scan of Mexican wolves to improve their captive breeding and reintroduction program"*

American Genetic Association Annual Symposium: Conservation Genomics 2010
Hilo, HI
Poster: "*Conservation Genomics of Arizona's Large Carnivores*"

University of Arizona Genetics Core Graduate Student Research Symposium 2010
Tucson, AZ
Presentation: "*Conservation Genomics for the Analysis of Arizona's Native Carnivores*"

42nd Joint Annual Meeting of the AZ/NM Chapters of the Wildlife Society 2009
Gallup, NM
Presentation: "*Genetic Variation and population structure in the endangered Mt. Graham red squirrel: evidence from microsatellite markers*"

21st Meeting of the American Society for Rickettsiology 2007
Colorado Springs, CO
Presentation: *"Novel Method for the Quantitative Detection of Ehrlichia sp. in Ohio Amblyomma americanum ticks"*
Poster: *"Sequencing and analysis of Orientia tsutsugamushi DNA in a Leptotrombidium pallidum mite colony originating in a scrub typhus endemic region in Saitama Prefecture, Japan"*
Poster: *"Rickettsial prevalence and antigenic variation in Ohio-collected Amblyomma americanum ticks"*

20th Meeting of the American Society for Rickettsiology 2006
Pacific Grove, CA
Poster: "*Phylogeographic Variation of Potential Virulence Genes from Rickettsia amblyommii Isolates from the North East United States*"
Poster: "*A Multigene Analysis of the Prevalence and Diversity of Rickettsial Forms in Amblyomma americanum Ticks from Ohio and the North Central United States*"

PROFESSIONAL AFFILIATIONS

National Association of Biology Teachers ..... 2018 - present
The Society for Integrative and Comparative Biology ..... 2017 – present
The American Genetic Association ..... 2010 – present
The Wild Felid Association ..... 2012 – present
Tucson Herpetological Society ..... 2008 – present
Society for Molecular Biology and Evolution ..... 2013 – 2015
The Wildlife Society ..... 2012 – 2013

OTHER RESEARCH EXPERIENCE and TRAINING

Summer Institute in Statistics for Big Data; U. of Washington 2018
Workshop, Supervised Methods for Statistical Machine Learning

Summer Institute in Statistical Genetics; U. of Washington 2010
Workshop, participated in modules: MCMC for Genetics, Coalescent Theory, and Inferences of Relatedness and Relationships

Field Assistant/Volunteer for Matt Goode ..... 2008 – 2013
Assisted with several field research projects, including lizard surveys in the Peloncillo Mtns. Of New Mexico, and a study of urban effects on tiger rattlesnakes (*Crotalus tigris*) in Oro Valley, AZ.

Field Assistant/Volunteer at Agumbe Rainforest Research Station 2009
Assisted for a week with a king cobra (*Ophiophagus hannah*) radio telemetry project in Agumbe, India.

Mathematical Biosciences Institute; The Ohio State University 2008
Summer Graduate Fellowship for training in mathematical biosciences; Trained in R-programming and microarray data analysis

Research Associate; **University of Hyderabad, Hyderabad, India** 2007
"*The role of the N-terminal domain of Yku80 in silencing telomere-proximal genes in Saccharomyces cerevisiae"* PI: Dr. Krishnaveni Mishra

Research Technician; The Ohio State University, Columbus, OH ..... 2004 – 2007
Performed ordinary laboratory procedures in a BSL-2 setting studying the bacterial agents *Rickettsia sp. and Ehrlichia sp.*, and minor experience with eukaryotic *Acanthamoeba*, and *Balamuthia*. PI: Dr. Paul Fuerst