NICHOLAS G. CRAWFORD

21 Upton St #3, Cambridge MA 02139

Cell: 617-460-3680

Email: ngcrawfo@bu.edu

Website: ngcrawford.com

Twitter: twitter.com/ngcrawford

Github: github.com/ngcrawford

AREAS OF SPECIALIZATION

Bioinformatics, computational biology, population genomics,

phylogenomics, evolutionary biology, speciation, ultra conserved

elements, and herpetology

EDUCATION

2007 - May 2013, Ph.D. Biology, Boston University

Advisor: Christopher Schneider

Thesis Title: Anolis Lizard Genomics and Phylogenetics

Additional Projects:

Mammal, Reptile, and Avian Phylogenomics, with Travis Glenn

Butterfly Speciation Genomics, with Sean Mullen

2004/07, M.S. Biology, San Diego State University

Advisor: Tod Reeder

Thesis: Population structure within the Plateau Striped

Whiptail (*Aspidoscelis velox* complex) a parthenogenetic lizard

Additional Project:

Phylogenetic relationships among Australian skinks of the genus

Glaphyromorphus

1997/01, B.S. Biology, Union College

Graduated Cum Laude with Academic and Departmental Honors

PROFESSIONAL EXPERIENCE

2007-2011 Teaching Fellow, Boston University: Introductory

Biology, Genetics, Evolution, Animal Behavior

2007 - South Carolina, Summer, 6 months, Research Technician,

supervised by Travis Glenn

2006 - South Carolina, Summer, 6 weeks, Microsatellite loci

preparation at the Savannah River Ecology Laboratory, supervised

by Travis Glenn

2004/2005 - Graduate Teaching Assistant, SDSU, Introductory

Biology and Introductory Zoology

2004 - Research Assistant, SDSU, Advisor: Tod Reeder

2002/03 - Research Associate, Boston Biochem

2001 - Research Associate, Pfizer Pharmaceuticals

2001 - Research Associate, Harvard Medical School

SKILLS AND TECHNIQUES

Programming Languages/Frameworks: Python (Modules: Numpy, Scipy,

Matplotlib, Biopython, Pysam, Multiprocessing, iPython, MrJob,

Pandas, Flask, and Django), MySQL/Sqlite3, Git/Github, Unix/Linux,

LSF/SGE/AWS Clusters, Hadoop/MapReduce, also some R, Perl, Html,

and CSS

Software: GATK, ABySS, Trinity, Breakdancer, Samtools, VCFtools,

Tophat, Cufflinks, Bowtie2, Stampy, GO Elite, Blast/NCBI, MrBayes,

Sequencher, Oligo (primer design), Genemapper, GenAlEx, Arlequin

Laboratory: Genomic, RAD-tag, and RNA-seq Illumina library

construction, Primer Design, DNA purification, PCR, qPCR (Taqman

and Kappa assays), Sanger Sequencing (both ABI3130 and ABI377

genetic analyzers), Microsatellite Genotyping, Bioanalyzer, and

constructing cDNA libraries

Miscellaneous Skills: Protein Purification (FPLC), Mammalian

Tissue Culture, Ordering and Stocking, Maintaining Laboratory

Compliance with Safety Regulations, Training Students and Techs,

and Catching lizards

GRANTS AND SCHOLARSHIPS

2012 - Grand Challenges Award, Smithsonian Institute Consortia,

Next Generation Phylogenetics, MJ Braun, K Wurdack, W Wcislo, J

Maldonado, K Helgen, S Brady, M Cummings, TC Glenn, BC Faircloth,

RT Brumeld, E Braun, JC McCormack, NG Crawford, N

White. $100,000.

2011 - Next-generation Sequencing Small Grant. Phylogenetic

utility of ultra- conserved elements for the avian tree of life.

MJ Braun, ND White, TC Glenn, BC Faircloth, RT Brumeld, EL

Braun, JE McCormack, NG Crawford. $10,000

2011 - Amazon Education Research Grant (aws.amazon.com),

Computational Resources. BC Faircloth, NG Crawford,

JE McCormack. $10,000.

2010 - Amazon Education Research Grant (aws.amazon.com),

Computational Resources. NG Crawford, BC Faircloth,

TC Glenn. $7,500.

2010 - Doctoral Dissertation Improvement Grant (NSF).

NG Crawford, C Schneider. $15,000.

2009 - Theodore Roosevelt Memorial Fund (American Museum of

Natural History) labwork/fieldwork. $1,500.

2005 - Theodore Roosevelt Memorial Fund (American Museum of

Natural History) labwork/fieldwork. $1,960.

2005 - Harry E. Hamber Memorial Scholarship, tuition. $1,400.

2000 - IEF Grant, thesis research. $100.

2000 - NYSEP Grant, summer stipend. $1,700.

1999 - Booth - Ferris Grant, summer stipend. $1,700.

PUBLICATIONS

Marcus R. Kronforst, Matthew E. B. Hansen, Nicholas G. Crawford,

Jason R. Gallant, Rob J. Kulathinal, Durrell D. Kapan, Sean P.

Mullen. 2013. Hybridization reveals the evolving genomic

architecture of speciation. Nature Genetics. In Review.

John E. McCormack, Michael G. Harvey, Brant C. Faircloth,

Nicholas G. Crawford, Travis C. Glenn, Robb T. Brumfield. 2013.

A phylogeny of birds based on over 1,500 loci collected by

target enrichment and high-throughput sequencing. PLoS ONE. Accepted.

John A. St. John, Edward L. Braun, Sally R. Isberg, Lee G. Miles,

Amanda Y. Chong, Jamie Gongora, Pauline Dalzell, Christopher

Moran, Taisen Iguchi, Bertrand Bed'Hom, Shane C. Burgess, Amanda

M. Cooksey, Todd A. Castoe, Arkhat Abzhanov, Llewellyn D.

Densmore, Miryam Venegas-Anya, Matthew J. Greenwold, Roger H.

Sawyer, Federico G. Hoffmann, Nicholas G. Crawford, Jennifer C.

Drew, Scott V. Edwards, Matthew K. Fujita, Jonathan M. Howard,

Brant C. Faircloth, Daniel E. Janes, Shahid Yar Khan, Satomi

Kohno, A.P. Jason de Koning, Stacey L. Lance, Fiona M. McCarthy,

John E. McCormack, Mark E. Merchant, Daniel G. Peterson, David D.

Pollock, Nader Pourmand, Brian J. Raney, Kyria A. Roessler,

Jeremy R. Sanford, Carl J. Schmidt, Eric W. Triplett, Tracey D.

Tuberville, Erich D. Jarvis, Louis J. Guillette Jr, Travis C.

Glenn, Richard E. Green and David A. Ray. 2012. Sequencing three

crocodilian genomes to illuminate the evolution of archosaurs

and amniotes. Genome Biology. 13, 415.

Kenro Kusumi, Rob J. Kulathinal, Arhat Abzhanov, Stephane

Boissinot, Nicholas G. Crawford, Brant C. Faircloth, Travis C.

Glenn, Daniel E. Janes, Jonathan B. Losos, Douglas B. Menke,

Steven Poe, Thomas J. Sanger, Christopher J. Schneider, Jessica

Stapley, Juli Wade, Jeanne Wilson-Rawls. 2012. Developing a

community-based genetic nomenclature for anole lizards. BMC

genomics, 12(1), 554.

Nicholas G. Crawford, Brant C. Faircloth, John E. McCormack,

Robb T. Brumfield, Kevin Winker, Travis C. Glenn. 2012. More than

1000 ultraconserved elements provide evidence that turtles are

the sister group of archosaurs. Biology Letters. 8(5), 783-786.

Brant C. Faircloth, John E. McCormack, Nicholas G. Crawford,

Michael Harvey, Robb T. Brumfield, Travis C. Glenn. 2012.

Ultraconserved elements anchor thousands of genetic markers for

target enrichment spanning multiple evolutionary timescales.

Systematic Biology. 61(5), 713-715.

John E. McCormack, Brant C. Faircloth, Nicholas G. Crawford,

Patricia Adair Gowaty, Robb T. Brumfield, Travis C. Glenn. 2011.

Ultraconserved Elements Are Novel Phylogenomic Markers that

Resolve Placental Mammal Phylogeny when Combined with Species

Tree Analysis. Genome Research. 22(4), 746-54.

Nicholas G. Crawford. 2010. SMOGD: Software for the

Measurement of Genetic Diversity. Molecular Ecology Resources, 10:

556-557.

Nicholas G. Crawford, Jaime Zaldvar-Rae, Cris Hagen, Amanda

Schable, Erica Bree Rosenblum, Jeff A. Graves, Tod W. Reeder,

Michael G. Ritchie, Travis C. Glenn. 2007. Thirteen polymorphic

microsatellite DNA loci from whiptails of the genus Aspidoscelis

(Teiidae: Squamata) and related cnemidophorine lizards.

Molecular Ecology Resources. 8: 219-223

Nicholas G. Crawford, Cris Hagen, Heather F. Sahli, Elizabeth

A. Stacy, Travis C. Glenn. 2007. Fifteen polymorphic

microsatellite loci from Hawaiis Metrosideros polymorpha

Myrtaceae: Myrtales), a model species for ecology and evolution.

Molecular Ecology Resources, 8, 308-310.

Caleb R. Hickman, Maureen B. Peters, Nicholas G. Crawford,

Cris Hagen, Travis C. Glenn, Christopher M. Sommers. 2008.

Development and characterization of microsatellite loci in the

American white pelican (Pelecanus erythrorhynchos). Molecular

Ecology Resources, 8, 1439-1441.

Nicholas G. Crawford, Maureen B. Peters, Cris Hagen, Travis C.

Glenn, Stephen K. Davis, Christopher M. Somers. 2007. Twelve

polymorphic microsatellite loci from Spragues pipit, Anthus

spragueii (Motacillidae:Passeriformes), a threatened grassland

endemic songbird. Molecular Ecology Resources, 9, 315-317.

Nicholas G. Crawford. 2007. Microsatellites in cnemidophorine

lizards: their utility in investigating the landscape genetics

of the plateau striped whiptail (Aspidoscelis velox Complex).

Masters Thesis: San Diego State University.

Olga V. Tsyusko, Tracey D. Tuberville, Maureen B. Peters,

Nicholas G. Crawford, Cris Hagen, Steve Weller, Ann Sakai, and

Travis C. Glenn. 2007. Microsatellite markers isolated from

polyploid woodsorrell (Oxalis alpina). Molecular Ecology Notes,

7, 1284-1286.

FIELD EXPERIENCE

2012 - Guantanamo Bay, Cuba, Summer, 1 week, collecting lizards

2009 - Guadeloupe, French West Indies, Summer, 5 days, collecting

lizards

2007 - New Mexico, Summer, 1 week, collecting lizards

2005 - New Mexico, Summer, 1 week, collecting lizards

2005 - Arizona, Summer, 2 weeks, collecting lizards

2004 - Arizona, Summer, 2 weeks, collecting lizards

2001 - New York, Summer, 1 week, collecting treefrogs

1999 - New York, Summer, 1 week, collecting treefrogs

CONFERENCES, MEETINGS, AND TALKS

2012 - Union College Seminar Series: Invited Speaker - Union College.

Presentation Title: Genomic approaches to understanding reptile evolution.

2012 - World Congress of Herpetology, Vancouver.

Presentation Title: The Genetics of Colorful Pigmentation in

Anolis Lizards.

2012 - Evolutionary Genomics Super Group, Broad Institute

Presentation Title: Ultraconserved Elements as Phylogenomic

Markers.

2012 - MCZ Lunchtime Seminar, Harvard University

Presentation Title: Thousands of ultraconserved elements in

combination with cloud computing and species-tree methods help

resolve deep divergences in reptiles, mammals, and birds

2010 - The Genetics and Evolution of Animal Coloration, Radcliffe

Workshop

Presentation Title: Identifying coloration genes when you

can‚Äôt easily do QTL mapping

2009 - Anole Symposium Harvard University

Presentation Title: Anolis carolinensis: Pigmentation Genetics

Poster Title: Genome scan identifies two loci associated with

color polymorphism in Anolis marmoratus

2009 - Gordon Conference: Evolutionary & Ecological Functional

Genomics - Tilton, New Hampshire.

Poster Title: Genetics of Colorful Pigmentation in Anolis Lizards

2009 - Society for Integrative and Comparative Biology Annual

Meeting, Boston Massachusetts.

Presentation Title: Evolution of Dewlap Pigmentation in Anoline

lizards

2008 - Union College Seminar Series: Invited Speaker - Union College

Presentation Title: Population Structure of the Plateau

Striped Whiptail a Parthenogenetic Species of Lizard

2007 - Island Biogeography Symposium, Harvard University, Cambridge

Massachusetts

2005 - American Society of Ichthyologists and Herpetologists 85th

Annual Meeting, Tampa, Florida

Presentation Title: Phylogenetic relationships among Australian

skinks of the genus Glaphyromorphus

2004 - American Society of Ichthyologists and Herpetologists 84th

Annual Meeting, Norman, Oklahoma

2004 - Evolution Conference, Fort Collins, Colorado