

## CURRICULUM VITAE

### Frederick Keith Barker

#### ADDRESS

Department of Ecology, Evolution and Behavior; and  
James Ford Bell Museum of Natural History  
University of Minnesota  
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#### D) IDENTIFYING INFORMATION:

##### A) ACADEMIC RANK

Associate Professor, Department of Ecology, Evolution and Behavior  
Curator of Genetic Resources, Bell Museum of Natural History  
Graduate faculty appointments in Ecology, Evolution and Behavior and Conservation Biology

##### B) EDUCATION

Ph.D., Evolutionary Biology, 1999. University of Chicago, Chicago, IL  
B.A., Biology, 1993. Reed College, Portland, OR

##### C) CURRENT APPOINTMENTS

*Associate Professor:* Department of Ecology, Evolution and Behavior, University of Minnesota; August 2015-Present

*Curator of Genetic Resources:* Bell Museum of Natural History, University of Minnesota; August 2008-Present

*Interim Curator of Birds:* Bell Museum of Natural History, University of Minnesota; March 2016-Present

*Graduate Faculty:* Department of Ecology, Evolution, and Behavior, University of Minnesota; September 2008-Present

*Graduate Faculty:* Conservation Biology, University of Minnesota; May 2012-Present

*Research Associate:* American Museum of Natural History, NY; January 2003-Present

##### D) PREVIOUS APPOINTMENTS

*Assistant Professor:* Department of Ecology, Evolution and Behavior, University of Minnesota; August 2008-2015

*Research Associate:* Bell Museum of Natural History, University of Minnesota; October 2005-August 2008

*Postdoctoral Associate:* Bell Museum of Natural History, University of Minnesota; October 2002-October 2005

*Chapman Postdoctoral Fellow:* American Museum of Natural History, NY; October 1999-October 2002

##### E) SOCIETY AFFILIATIONS

American Ornithologists' Union  
Society for the Study of Evolution  
Society of Systematic Biologists

## **II) HONORS AND AWARDS**

### **A) EXTERNAL SOURCES**

Fellow, American Ornithologists' Union, 2013

Elective Member, American Ornithologists' Union, 2005

## **III) RESEARCH AND SCHOLARSHIP**

### **A) RESEARCH GRANTS**

#### *Funded (Current):*

Legislative-Citizen Commission on Minnesota Resources. *Integrating Minnesota's biodiversity data: a comprehensive, dynamic atlas*. PIs: **F.K. Barker**, S.T. Bates, S.A. Jansa, A. Simons, and G. Weiblen. \$340,000, July 2015-Present.

National Science Foundation, Division of Environmental Biology, Systematics and Biodiversity Science Cluster: *EAGER: The impact of selection and temperate-tropical transitions on the evolution of New World bird diversity*. PI **F.K. Barker**. DEB-1541312. \$148,881, August 2015-Present.

#### *Funded (Past):*

University of Minnesota, Grant-in-Aid of Research, Artistry and Scholarship: *Testing the relative utility of mitochondrial genomes and large nuclear data sets for inferring the phylogeny of passerine birds*. PI: **F.K. Barker**. \$28,110, September 2011-December 2012.

National Science Foundation, Division of Environmental Biology, Cluster for Systematic and Population Biology: *Collaborative Research: Historical inference in the Emberizinae (Aves: Passeriformes) using a complete species-level phylogeny*. PIs: **F.K. Barker**, K.J. Burns, J.T. Klicka, S.M. Lanyon, and I.J. Lovette. DEB-0316092. \$333,449 (\$117,740 to University of Minnesota, plus an REU supplement for \$10,249 in 2004), June 2003-August 2007.

Chapman Memorial Fund, American Museum of Natural History: Chapman Postdoctoral Fellowship. October 1999-October 2002.

Chapman Memorial Fund, American Museum of Natural History: *The evolution of cooperative breeding in Campylorhynchus wrens: A comparative approach*. \$1250, April 1997

Blake Memorial Fund, American Ornithologists' Union: *The evolution of cooperative breeding in Campylorhynchus wrens: A comparative approach*. \$1875, April 1997

### **B) PUBLICATIONS**

(published with: \* Undergraduate student, \*\* Graduate student)

#### *Reviewed Journal Papers:*

Avendano, J.E., **F.K. Barker**, C.D. Cadena. 2016. The Yellow-green Bush-tanager is neither a bush-tanager nor a sparrow: Molecular phylogenetics reveals that *Chlorospingus flavovirens* is a tanager (Aves: Passeriformes; Thraupidae). *Zootaxa* 4136(2): 373-381.

Remsen, J.V., Jr., A.F.L.A. Powell, **F.K. Barker**, and S.M. Lanyon. A revised classification of the Icteridae (Aves) based on DNA sequence data. *Zootaxa* 4093(2): 285-292.

**Barker, F.K.**, S. Oyler-McCance, and D.F. Tomback. 2015. Blood from a turnip: tissue origin of low-coverage shotgun sequencing libraries affects recovery of mitogenome sequences. *Mitochondrial DNA* 26(3): 384-388.

**Barker, F.K.**, K.J. Burns, J. Klicka, I.J. Lovette, S.M. Lanyon. 2015. New insights into New World biogeography: an integrated view from the phylogeny of blackbirds, cardinals, sparrows, tanagers, warblers, and allies. *The Auk: Ornithological Advances* 132: 333-348.

Jarvis, E.D., S. Mirarab, A.J. Aberer, B. Li, P. Houde, C. Li, S.Y.W. Ho, B.C. Faircloth, B. Nabholz, J.T. Howard, A. Suh, C.C. Weber, R.R. da Fonseca, J. Li, F. Zhang, H. Li, L. Zhou, N. Narula, L. Liu, G. Ganapathy, B. Boussau, Md.S. Bayzid, V. Zavidovych, S. Subramanian, T. Gabaldón, S. Capella-

- Gutiérrez, J. Huerta-Cepas, B. Rekepalli, K. Munch, M. Schierup, B. Lindow, W.C. Warren, D. Ray, R.E. Green, M. Bruford, X. Zhan, A. Dixon, S. Li, N. Li, Y. Huang, E.P. Derryberry, M.F. Bertelsen, F. Sheldon, R.T. Brumfield, C. Mello, P.V. Lovell, M. Wirthlin, J.A. Samaniego, A.M.V. Velazquez, A. Alfaro-Núñez, P.F. Campos, T. Sicheritz-Ponten, A. Pas, T. Bailey, P. Scofield, M. Bunce, D. Lambert, Q. Zhou, P. Perelman, A.C. Driskell, G. Ruby, B. Shapiro, Z. Xiong, Y. Zeng, S. Liu, Z. Li, B. Liu, K. Wu, J. Xiao, X. Yinqi, Q. Zheng, Y. Zhang, H. Yang, J. Wang, L. Smeds, F.E. Rheindt, M. Braun, J. Fjeldsa, L. Orlando, **F.K. Barker**, K.A. Jönsson, W. Johnson, K.-P. Koepfli, S. O'Brien, D. Haussler, O.A. Ryder, C. Rahbek, E. Willerslev, G.R. Graves, T.C. Glenn, J. McCormack, D. Burt, H. Ellegren, P. Alström, S. Edwards, A. Stamatakis, D.P. Mindell, J. Cracraft, E.L. Braun, T. Warnow, W. Jun, M.T.P. Gilbert, G. Zhang. 2014. Whole genome analyses resolve the early branches in the tree of life of modern birds. *Science* 346(6215): 1320-1331.
- Winger, B.M., R.H. Ree, and **F.K. Barker**. 2014. The biogeographic history of seasonal bird migration between North America and the Neotropics. *Proceedings of the National Academy of Sciences, USA* 111(33) 12115-12120.
- Barker, F.K.** 2014. Mitogenomic data resolve basal relationships among passeriform and passeridan birds. *Molecular Phylogenetics and Evolution* 79: 313-324.
- Klicka, J., **F.K. Barker**, K.J. Burns, S.M. Lanyon, I.J. Lovette, J.A. Chaves, and R.W. Bryson, Jr. 2014. A comprehensive multilocus assessment of sparrow (Family Passerellidae) relationships. *Molecular Phylogenetics and Evolution* 77: 177-182.
- Pasquet, E., **F.K. Barker**, J. Martens, J., A. Tillier, C. Cruaud, and A. Cibois. 2014. Evolution within the nuthatches (Sittidae: Aves, Passeriformes): molecular phylogeny, biogeography, and morphological perspectives. *Journal of Avian Biology* 155(3): 755-765.
- Burns, K.J., A.J. Shultz, P.O. Title, N.A. Mason, **F.K. Barker**, J. Klicka, S.M. Lanyon, and I.J. Lovette. 2014. Phylogenetics and diversification of tanagers (Passeriformes: Thraupidae), the largest radiation of Neotropical songbirds. *Molecular Phylogenetics and Evolution* 75: 41-77.
- Jansa, S.A., **F.K. Barker**, and R.S. Voss. 2014. The early diversification history of didelphid marsupials: a window into south america's 'splendid isolation'. *Evolution* 68(3): 684-695.
- Powell, A.F.L.A. \*\*, **F.K. Barker**, Scott M. Lanyon, K.J. Burns, J. Klicka, and I.J.L. Lovette. 2014. A comprehensive species-level molecular phylogeny of the New World blackbirds (Icteridae). *Molecular Phylogenetics and Evolution* 71(1): 94-112.
- Dufort, M.J.\*\* and **F.K. Barker**. 2013. Asymmetric population expansion rather than convergent selection underlies the mosaic distribution of red-winged blackbird (*Agelaius phoeniceus*) phenotypes. *Ecology and Evolution* 3(15): 4851-5126. doi: 10.1002/ece3.859.
- Alström, P., K. Barnes, U. Olsson, **F.K. Barker**, P. Bloomer, A. Ahmed Khan, M. Ahmed Qureshi, and P.G. Ryan. 2013. Multilocus phylogeny of the avian family Alaudidae (larks) reveals complex morphological evolution, non-monophyletic genera and hidden species diversity. *Molecular Phylogenetics and Evolution* 69: 1043-1056.
- Ryan, P.G., L.B. Klicka, **F.K. Barker**, and K.J. Burns. 2013. The origin of finches on Tristan da Cunha and Gough Island, central South Atlantic Ocean. *Molecular Phylogenetics and Evolution* 69: 299-305.
- Barker, F.K.**, K.J. Burns, J. Klicka, I.J. Lovette, S.M. Lanyon. 2013. Going to extremes: contrasting rates of diversification in a recent radiation of New World passerine birds. *Systematic Biology* 62(2): 298-320.
- Powell, A.F.L.A. \*\*, **F.K. Barker**, S.M. Lanyon. 2013. Empirical evaluation of partitioning schemes for phylogenetic analyses of mitogenomic data: an avian case study. *Molecular Phylogenetics and Evolution* 66: 69-79.
- Barker, F.K.**, M.K. Benesh\*, A.J. Vandergon\*, and S.M. Lanyon. 2012. Contrasting evolutionary dynamics and information content of the avian mitochondrial control region and ND2 gene. *PLoS ONE* 7(10): e46403. doi:10.1371/journal.pone.0046403
- Molecular Ecology Resources Primer Development Consortium, **F.K. Barker**, J.J. Bell, S.M. Bogdanowicz, S.L. Bonatto, F. Cezilly, S.M. Collins, C. Dubreuil, M. Dufort\*\*, C. Eraud, R. Fuseya,

- E.A. Heap, N. Jacobsen, M. Madders, R. McEwing, Andrew P. Michel, F. Mougeot, R. S. Ogden, Lucia C. Orantes, A.S. Othman, E. Parent, P. Pulido-Santacruz, R. Rioux-Paré, M.F. Roberts, R. Rosazlina, T. Sakamoto, P. Salinas-De-León, J.-M. Sévigny, P. St-Onge, J. Terraube, R.E. Tingay, R. Tremblay, S. Watanabe and R.A. Wattier. 2011. Permanent genetic resources added to Molecular Ecology Resources Database 1 June 2011-31 July 2011. *Molecular Ecology Resources* 11(6): 1124-1126. Full manuscript available at: <http://tomato.bio.trinity.edu/manuscripts/11-6/mer-11-0123.pdf>.
- Lovette, I.J., J.L. Pérez-Emán, J. Sullivan, R.C. Banks, I. Fiorentino, S. Córdoba-Córdoba, M. Echeverry-Galvis, **F.K. Barker**, K. Burns, J. Klicka, S.M. Lanyon, and E. Bermingham. 2010. A comprehensive multilocus phylogeny for the wood-warblers and a revised classification of the Parulidae (Aves). *Molecular Phylogenetics and Evolution* 57: 753-770.
- McKay, B.D. \*\*, **F.K. Barker**, H.L. Mays, Jr., S.M. Doucet, and G.E. Hill. 2010. A molecular phylogenetic hypothesis for manakin genera (Aves: Pipridae). *Molecular Phylogenetics and Evolution* 55(2): 733-737.
- Fujishin, L.M., **F.K. Barker**, D.D. Huff, and L.M. Miller. 2009. Isolation of 13 polymorphic microsatellite loci for slimy sculpin (*Cottus cognatus*). *Conservation Genetics Resources* 1(1): 429-432. DOI 10.1007/s12686-009-9099-3.
- Schmitt, I., and **F.K. Barker**. 2009. Phylogenetic methods in natural product research. *Natural Product Reports* 26: 1585-1602. DOI:10.1039/b910458p
- Kimball, R.T., E.L. Braun., **F.K. Barker**, R.C.K. Bowie, M.J. Braun, J.L. Chojnowski, S.J. Hackett, K.-L. Han, J. Harshman, V. Heimer-Torres, W. Holznagel, C.J. Huddleston, B.D. Marks, K.J. Miglia, W.S. Moore, S. Reddy, F.H. Sheldon, J.V. Smith, C.C. Witt, and T. Yuri. 2009. A well-tested set of primers to amplify regions spread across the avian genome. *Molecular Phylogenetics and Evolution* 50: 654-660.
- Mann, N.I., K.A. Dingess, **F.K. Barker**, J.A. Graves, and P.J.B. Slater. 2009. A comparative study of song form and duetting in neotropical *Thryothorus* wrens. *Behaviour* 146(1): 1-43.
- Spellman, G., A. Cibois, R. Moyle, and K. Winker and **F.K. Barker**. 2008. Clarifying the systematics of an enigmatic avian lineage: What is a Bombycillid? *Molecular Phylogenetics and Evolution* 49(3): 2036-2040.
- Powell, A.F.L.A. \*\*, **F.K. Barker** and S.M. Lanyon. 2008. A complete species-level phylogeny of the grackles (*Quiscalus* spp.), including the extinct Slender-billed Grackle, inferred from mitochondrial DNA. *The Condor* 110(4): 718-728.
- Barker, F.K.**, A.J. Vandergon \*, and S.M. Lanyon. 2008. Assessment of species limits among yellow-breasted meadowlarks (*Sturnella* spp.) using mitochondrial and sex-linked markers. *The Auk* 125(4): 869-879.
- Barker, F.K.**, A.J. Vandergon \*, and S.M. Lanyon. 2008. Species status of the Red-shouldered Blackbird (*Agelaius assimilis*): implications for ecological, morphological, and behavioral evolution in *Agelaius*. *The Auk* 125(1): 87-94.
- Jansa, S.A., V. Soarimalala, S.M. Goodman, and **F.K. Barker**. 2008. Morphometric variation and phylogeographic structure in *Macrotarsomys bastardi* (Rodentia: Nesomyidae), an endemic Malagasy dry forest rodent. *Journal of Mammalogy* 89(2): 316-324.
- Chesser, R.T., **F.K. Barker**, and R.T. Brumfield. 2007. Four-fold polyphyly of the genus formerly known as *Upucerthia*, with notes on the systematics and evolution of the avian subfamily Furnariinae. *Molecular Phylogenetics and Evolution* 44(3): 1320-1332.
- Driskell, A.L. Christidis, B.J. Gill, W.E. Boles, **F.K. Barker**, and N.W. Longmore. 2007. A new endemic family of New Zealand passerine birds: adding heat to a biodiversity hotspot. *Australian Journal of Zoology* 55(7): 73-78.
- Barker, F.K.** 2007. Avifaunal interchange across the Panamanian Isthmus: insights from *Campylorhynchus* wrens. *Biological Journal of the Linnean Society* 90: 687-702.
- Mann, N.I., **F.K. Barker**, J.A. Graves, K.A. Dingess-Mann, and P.J.B. Slater. 2006. Molecular data delineate four genera of “*Thryothorus*” wrens. *Molecular Phylogenetics and Evolution* 40: 750-759.

- LeCroy, M., and **F.K. Barker**. 2006. A new species of bush-warbler from Bougainville Island and a monophyletic origin of southwest Pacific *Cettia*. *American Museum Novitates* 3511: 1-20.
- Jansa, S.A., **F.K. Barker**, and L.R. Heaney. 2006. The pattern and timing of diversification of Philippine endemic rodents: Evidence from mitochondrial and nuclear gene sequences. *Systematic Biology* 55(1): 73-88.
- Beresford, P., **F.K. Barker**, P.G. Ryan, and T.M. Crowe. 2005. African endemics span the tree of songbirds (Passeri): Molecular systematics of several evolutionary 'enigmas'. *Proceedings of the Royal Society of London, Series B* 272: 849-858.  
[Times cited: 68]
- Barker, F.K.**, A. Cibois, P. Schikler, J. Feinstein, and J. Cracraft. 2004. Phylogeny and diversification of the largest avian radiation. *Proceedings of the National Academy of Sciences*. 101(30): 11040-11045.
- Barker, F.K.** 2004. Monophyly and relationships of wrens (Aves: Troglodytidae): a congruence analysis of heterogeneous mitochondrial and nuclear DNA sequence data. *Molecular Phylogenetics and Evolution* 32(2): 486-504.
- Barker, F.K.**, and F.M. Lutzoni. 2002. The utility of the incongruence length difference test. *Systematic Biology* 51(4): 625-637.
- Barker, F.K.**, G.F. Barrowclough, and J. G. Groth. 2002. A phylogenetic hypothesis for passerine birds: taxonomic and biogeographic implications of an analysis of nuclear DNA sequence data. *Proceedings of the Royal Society of London, Series B* 269: 295-308.
- Barker, F.K.**, and S.M. Lanyon. 2000. The impact of parsimony weighting schemes on inferred relationships among toucans and Neotropical barbets (Aves: Piciformes). *Molecular Phylogenetics and Evolution* 15(2): 215-234.
- Lutzoni, F., and **F.K. Barker**. 1999. Sampling confidence envelopes of phylogenetic trees for combinability testing: A reply to Rodrigo. *Systematic Biology* 48(3): 596-603.

*Reviewed Books and Book Chapters:*

- Barker, F.K.** 2011. Phylogeny and diversification of modern passerines. Pp. 235-256 in G. Dyke and G. Kaiser, eds. *The Evolutionary History of Modern Birds*. J. Wiley and Sons.
- Cracraft, J., and **F.K. Barker**. 2009. Passeriformes. Pp. 423-431 in S.B. Hedges and S. Kumar, eds., *The Timetree of Life*. Oxford University Press, New York.
- Cracraft, J., **F.K. Barker**, M. Braun, J. Harshman, G.J. Dyke, J. Feinstein, S. Stanley, A. Cibois, P. Schikler, P. Beresford, J. García-Moreno, M.D. Sorenson, T. Yuri and D.P. Mindell. 2004. Phylogenetic relationships among modern birds (Neornithes): toward an avian tree of life. Pp. 468-489 in J. Cracraft and M. J. Donoghue, eds. *Assembling the Tree of Life*. Oxford University Press, New York.

*Reviewed Committee Publications:*

- Chesser, R.T., R.C. Banks, **F.K. Barker**, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, J.D. Rising, D.F. Stotz, and K. Winker. 2013. Fifty-fourth supplement of the American Ornithologists' Union *Check-List of North American Birds*. *The Auk* 130(3): 558-571.
- Chesser, R.T., R.C. Banks, **F.K. Barker**, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, J.D. Rising, D.F. Stotz, and K. Winker. 2012. Fifty-third supplement of the American Ornithologists' Union *Check-List of North American Birds*. *The Auk* 129(3): 573-588.
- Chesser, R.T., R.C. Banks, **F.K. Barker**, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, J.D. Rising, D.F. Stotz, and K. Winker. 2011. Fifty-second supplement of the American Ornithologists' Union *Check-List of North American Birds*. *The Auk* 128(3): 600-613.
- Chesser, R.T., R.C. Banks, **F.K. Barker**, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, D.F. Stotz, and K. Winker. 2010. Fifty-first supplement to the American Ornithologists' Union *Check-list of North American Birds*. *The Auk* 127(3): 726-744.
- Genome 10K Community of Scientists (including **F.K. Barker**). 2009. Genome 10K: A proposition to

obtain whole genome sequence for 10,000 vertebrate species. *Journal of Heredity* 100(6): 659-674.  
DOI:10.1093/jhered/esp086

Chesser, R.T., R.C. Banks, **F.K. Barker**, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J. V. Remsen, Jr., J.D. Rising, D.F. Stotz, and K. Winker. 2009. Fiftieth Supplement to the American Ornithologists' Union Check-list of North American Birds. *The Auk* 126(3): 705–714.

*Other Publications:*

Cracraft, J., **F.K. Barker**, and A. Cibois. 2003. Avian higher-level phylogenetics and the Howard and Moore Checklist of Birds. In E. Dickinson, ed. *The Howard and Moore Complete Checklist of the Birds of the World: Third Edition*. Princeton University Press, Princeton, NJ.

**Barker, F.K.** 2001. Wrens. Pp. 440-444 in C. Elphick, J.B. Dunning, Jr., and D.A. Sibley, eds. *The Sibley Guide to Bird Life and Behavior*. Chanticleer Press, New York.

**C) PRESENTATIONS**

*Invited Departmental Seminars*

Department of Zoology, Field Museum of Natural History; to be delivered October 2014.

Department of Ecology and Evolutionary Biology, University of Kansas; February 2014.

Academy of Natural Sciences and Department of Biodiversity, Earth and Environmental Science, Drexel University; February 2014.

Department of Geophysical Sciences, University of Chicago; September 2013.

Department of Ecology and Evolutionary Biology, Yale University; September 2013.

Laboratory of Ornithology, Cornell University; September 2013.

American Museum of Natural History; March 2012.

Department of Wildlife and Fisheries Sciences, Texas A&M University; July 2007.

Department of Ecology, Evolution, and Behavior, University of Minnesota; April 2007.

Department of Biology, University of New Mexico; November 2005.

Department of Integrative Biology, University of California, Berkeley; February 2005.

Museum of Vertebrate Zoology, University of California, Berkeley; February 2005.

Bell Museum of Natural History, University of Minnesota; November 2002

Department of Conservation Biology, National Zoological Park; October 2001

American Museum of Natural History; May 2001

*Invited Symposium Talks*

**Barker, F.K.** Taxonomic variation in crypsis: a survey with examples from wrens and blackbirds. Symposium: *Molecular Biogeography and the Classification Crisis*. American Ornithologists' Union; September 2014.

**Barker, F.K.** It matters how you slice it: a new molecular perspective on the timing and success of interhemispheric dispersal in oscine passerine birds. Symposium: *The Assembly of the North American Avifauna*. American Ornithologists' Union; August 2013.

Rabosky, D., B.M. Winger, I.J. Lovette, **F.K. Barker**, K.J. Burns, J. Klicka, and S.M. Lanyon. The temporal and spatial dynamics of speciation during the New World nine-primaried oscine radiation. Symposium: *The Assembly of the North American Avifauna*. American Ornithologists' Union; August 2013

Powell, A.F.L.A. \*\*, **F.K. Barker** and S. M. Lanyon. Phylogeny of the genera of New World blackbirds (Icteridae) endemic to South America, as inferred from whole mitochondrial genome sequences. International Ornithological Congress, August 2010.

Cracraft, J., and **F.K. Barker**. A molecular time scale for avian diversification. Society for Molecular Biology and Evolution/American Genetics Association; June 2004.

Barrowclough, G.F., J.G. Groth, and **F.K. Barker**. Base composition heterogeneity in avian exons and phylogenetic inference. American Ornithologists' Union; September 2002.

**Barker, F.K.**, A. Cibois, and J.G. Groth. Phylogenetic relationships within the Passerida based on

nuclear DNA sequence data. 23<sup>rd</sup> International Ornithological Congress; August 2002.

**Barker, F.K.**, and F.M. Lutzoni. Spurious rejection of partition homogeneity by the ILD test: A simulation study. Mycological Society of America; August 2000

\*\* Graduate Student

*Meeting Presentations (talks and posters)*

Barker, F.K. Biogeography outperforms mating systems in explaining rates of morphological evolution in Icteridae. American Ornithologists' Union, Washington DC, August 2016

Imfeld, T. and **F.K. Barker**. The relationship between species diversification and morphological evolution in New World oscines. ASN/SSB/SSE, Austin TX, June 2016.

**Barker, F.K.** Assembly of the New World oscine passerine fauna. ASN/SSB/SSE, Raleigh NC, June 2014.

Wells, M. \*\*, and **F.K. Barker**. Big groups, bad eggs and biogeography: regional and global patterns of brood parasitism's effect on cooperative breeding. ASN/SSB/SSE, Raleigh NC, June 2014.

Winger, B. \*\*, **F.K. Barker**, and R. Ree. Geographic history of long-distance seasonal migration in the largest New World radiation of migratory birds. ASN/SSB/SSE, Raleigh NC, June 2014. [Won the Ernst Mayr award for best student paper, SSB]

Wells, M.J. \*\*, and **F.K. Barker**. Production of variable microsatellites and application to a species of cooperatively breeding wren. American Ornithologists' Union; August 2013. [Poster]

**Barker, F.K.** Mitogenomic data resolve basal relationships among passeriform and passeridan birds. ASN/SSB/SSE; **June 2013**.

Vazquez-Miranda \*\*, H., and **F.K. Barker**. Speciation in the Neotropics: a multi locus phylogeny of *Campylorhynchus* wrens (Aves: Troglodytidae). ASN/SSB/SSE, Norman OK, June 2011

Vazquez-Miranda \*\*, H., y **F.K. Barker**. Especiación del género *Campylorhynchus* y el uso de múltiples loci, múltiples individuos y métodos de árboles de especies. IX Congreso de Ornitología Neotropical, Cusco Peru, **November 2011**. [received third prize for student presentation]

Musser, J.M. \*, **F.K. Barker**, and R.O. Prum. Measuring sexual selection from genetic estimates of effective population size in lekking manakins (Aves: Pipridae). Society for Integrative and Comparative Biology, **January 2011**. [received an Honorable Mention in the Best Platform Presentation category]

MacInnes, C.D., J.O. Leafloor, K.F. Abraham, and **F.K. Barker**. Is the type specimen of the lesser Canada Goose, *Branta canadensis parvipes*, actually a cackling goose? North American Arctic Goose Conference and Workshop, **January 2011**.

**Barker, F.K.**, J.M. Musser \*, and R.O. Prum. Impact of social mating systems on patterns of autosomal and sex-linked variation in blackbirds (Icteridae). International Ornithological Congress, August 2010.

Dufort, M.J. \*\*, and **F.K. Barker**. Patterns of genetic differentiation in phenotypically divergent populations of red-winged blackbird (*Agelaius phoeniceus*). International Ornithological Congress, August 2010. [Poster]

Musser, J. \*, R.O. Prum, and **F.K. Barker**. Detecting patterns and intensity of sexual selection with population genetics: the lekking manakins (Pipridae). International Ornithological Congress, August 2010.

**Barker, F.K.**, J.M. Musser \*, and R.O. Prum. Impact of social mating systems on patterns of autosomal and sex-linked variation in blackbirds (Icteridae). American Ornithologists' Union, February 2010.

**Barker, F.K.**, K.J. Burns, J. Klicka, S.M. Lanyon, and I.J. Lovette. Temporal and phylogenetic patterns of diversity in New World tanagers, cardinals, sparrows, blackbirds, and warblers. American Ornithologists' Union, August 2007.

Lanyon, S.M., and **F.K. Barker**. Exploring patterns of morphological evolution in the New World blackbirds. American Ornithologists' Union, August 2007.

**Barker, F.K.**, K.J. Burns, J. Klicka, S.M. Lanyon, and I.J. Lovette. Assembling, and using, the nine-primaried oscine Tree of Life: the poster. American Ornithologists' Union, August 2007. [Poster]

- Powell, A.F.L.A. \*\*, **F.K. Barker** and S.M. Lanyon. A complete species-level phylogeny of the grackles, including the extinct Slender-billed Grackle (*Quiscalus palustris*), inferred from mitochondrial DNA. American Ornithologists' Union, August 2007. [Poster]
- Barker, F.K.**, A.J. Vandergon \*, and S.M. Lanyon. Phylogeny and origins of the meadowlarks. American Ornithologists' Union, October 2006. [Poster]
- Mann, N.I., K.A. Dingess, J.A. Graves, **F.K. Barker**, and P.J.B. Slater. A comparative study of song duetting in *Thryothorus* wrens. International Ethological Congress, August 2005.
- Barker, F.K.** Phylogeny of the Sylvioidea from combined RAG-1 and RAG-2 sequences. American Ornithologists' Union, August 2005.
- Babcock, M.K. \*, **F.K. Barker**, and S.M. Lanyon. Mitochondrial, autosomal and sex-linked DNA variation within and between red-winged and tricolored blackbirds. American Ornithologists' Union, August 2005. [Poster]
- Barker, F.K.**, K.J. Burns, J. Klicka, S.M. Lanyon, and I.J. Lovette. Multiple nuclear genes support major clades of New World nine-primaried oscines (Emberizinae). American Ornithologists' Union, August 2004.
- Barker, F.K.**, and S.M. Lanyon. Polymorphism of mtDNA and a Z-linked intron in red-winged blackbirds. American Ornithologists' Union, August 2004.
- Vandergon, A.J. \*, **F.K. Barker**, and S.M. Lanyon. Molecular systematics of the meadowlarks and allies (Icterini). American Ornithologists' Union, August 2004. [Poster]
- Beresford, P., **F.K. Barker**, P.G. Ryan, and T.M. Crowe. New answers to old questions: resolving enigmatic African songbirds with nuclear loci. American Ornithologists' Union, August 2004.
- Barker, F.K.**, and J. Cracraft. A molecular time scale for avian diversification: the largest avian order (Passeriformes). Society for Molecular Biology and Evolution/American Genetic Association, June 2004.
- Barker, F.K.** Phylogeny of the Passerida (Passeriformes: Oscines). American Ornithologists' Union, August 2003.
- Cracraft, J., and **F.K. Barker**. How birds escaped Armageddon: using phylogenetic history and biogeography to assess the impact of the KT extinction event. ASN/SSE/SSB, June 2003.
- Barker, F.K.**, G.F. Barrowclough, and J.G. Groth. Passerine phylogeny from nuclear DNA sequences: taxonomic and biogeographic implications. American Ornithologists' Union; August, 2001
- Barker, F.K.** Phylogeny of *Campylorhynchus* wrens: Inferences from mitochondrial DNA and implications for historical biogeography. American Ornithologists' Union; August, 2000.
- Barker, F.K.** A comparative analysis of cooperative breeding in *Campylorhynchus* (Aves: Troglodytidae). ASN/SSE/SSB; June, 2000.
- Barker, F.K.** A total-evidence estimate of relationships within the family Troglodytidae using mitochondrial and nuclear sequence data. American Ornithologists' Union; April, 1998.
- Barker, F.K.** Relationships within the family Troglodytidae, with comments on the placement of *Donacobius*. American Ornithologists' Union, August, 1997.
- Hackett, S., **F.K. Barker**, and E. Grismer. Fibrinogen introns and avian systematics. ASN/SSE/SSB, June 1997.
- Barker, F.K.**, and S.M. Lanyon. A hypothesis of intrafamilial relationships in the toucans and New World barbets (Ramphastidae) based upon variation in cytochrome *b*. American Ornithologists' Union, August, 1996.

\*Undergraduate student, \*\*Graduate student

#### *Organized Symposia*

Lanyon, S.M., and **F.K. Barker**. Assembling, and using, the nine-primaried oscine Tree of Life. American Ornithologists' Union, August 2007.

#### **D) CURATION**

##### *Collecting*



U.S.A: Minnesota, 2005-2012; California, 2007-2015; Missouri, 2009; Montana 2015.

International: México (Queretaro, Morelos), 1997; México (Estado de México), 2012.

#### *Collections Management*

Graduate CA supervision: Tom Giarla (Summer 2012; mapped bird collection database and completed preparations for updating of specimen data, including tissue availability); Michael Wells (Spring 2013; subsampled tissues on large [~700 specimen] loan from the Field Museum, prepared loan for return, organized and databased ~2000 Raptor Center samples); Danielle Drabeck (Fall 2013, Fall 2016; prepared loans, assisted in setup of vertebrate collections freezer, transitioned bird and mammal tissues, began database verification of tissues, organized and decontaminated Raptor Center blood collection); Michael Wells (Spring 2014; continued setup of vertebrate collections freezer, began integration of herpetology collections); Benjamin Lowe (Spring 2016; georeferencing herp collections).

Undergraduate CA supervision: Nick Minor (Fall 2015, Spring 2016, Summer 2016, Fall 2016; continued accessioning of specimens, returned outstanding loans, prepared outgoing loans).

#### *Database Management*

Bell Museum *Specify* account and database access management (Fall 2013-present)

Initiated development of the *Minnesota Biodiversity Atlas* with funding from LCCMR (2015-present, see grants)

### **IV) TEACHING AND CURRICULUM DEVELOPMENT:**

#### **A) FACULTY DEVELOPMENT**

EEB Writing Enhanced Curriculum Workshop: Responding to Student Writing; Fall 2009

Early Career Teaching Program (UMN Center for Teaching and Learning); Fall-Spring 2009

#### **B) TEACHING**

##### *Moderator*

Systematics Seminar: University of Minnesota, Twin Cities; 2006-Spring 2016

##### *Lecturer*

General Zoology (BIOL2012): University of Minnesota, Twin Cities; Fall 2008-2011, 2013

Principles of Systematics (EEB5371): University of Minnesota, Twin Cities; Spring 2005, 2008, 2010, 2015, 2016

Ornithology (EEB4134): University of Minnesota, Twin Cities; Spring 2017

##### *Invited workshop organizer and lecturer*

Workshop on Molecular Systematics: Instituto Tecnológico Metropolitano, Museo de Ciencias Naturales de la Salle, Medellín, Colombia (enrollment: 25 graduate students and professionals from Colombia) 11-17 February, 2013

### **V) ADVISING AND MENTORING:**

#### **A) FACULTY DEVELOPMENT**

Graduate School Workshop: Faculty Member as Mentor: Best Practices in the Successful Mentoring of Graduate Students; Fall 2009

#### **B) UNDERGRADUATE MENTORING**

##### *Student Employees*

Mariah K. Babcock (3 semesters)

Nate Buerkle (4 semesters)  
Matthew Clark (3 semesters)  
Paul M. Kapfer (2 semesters)  
Lukas Klicka (1 semester)  
Reggie Thomes (1 semester)  
Arion J. Vandergon (2 semesters)

*Independent Research* (U. of MN Undergraduate Research Opportunities program)

Mariah K. Babcock (1 semester)  
Arion J. Vandergon (1 semester)

*Directed Research*

Shanta Hejmadi (volunteer, Fall 2016)  
Franklin Axell (volunteer, 2 semesters; credit, Fall 2016)  
Nicholas Beermann (Secondary Education Partnership in Greater Minnesota program; 1 summer)  
Matthew Clark (1 semester)  
Hannah Conley (1 semester)  
Sam Levin (1 semester)  
Mariah McMahon (volunteer, 1 semester)  
Jacob Musser (EEB Honors Program; 2 semesters)  
Sally Paulson (1 semester)  
Angela Pitera (1 semester; volunteer 1 semester)  
Robert Severson (ESPM Service Learning Program; 1 semester)  
Reggie Thomes (1 semester)  
Arion J. Vandergon (NSF REU; 1 semesters)

**C) GRADUATE ADVISING**

*Internships*

Abigail Anderson (Museum Studies internship, Fall 2016)

*M.S. Committees*

Lorissa Fujishin (U. of MN, Cons. Biol.; 2008-2010)

*Graduate Advisory Committees* (pre-prelim)

Marta Lyons (U. of MN, EEB; 2013-present)  
James Tumulty (U. of MN, EEB; 2012-present)

*Ph.D. Committees*

Juan Diaz-Neto (U. of MN, EEB; 2009-2016, defended Spring 2016)  
Danielle Drabeck (U. of MN, EEB; 2012-present)  
Josh Egan (U. of MN, CB; 2012-present)  
Tom Giarla (U. of MN, EEB; 2007-2013, defended Spring 2013)  
Peter Hundt (U. of MN, CB; 2010-2016, defended Spring 2016)  
Chih-Ming Hung (U. of MN, EEB; 2008-2012)  
Pai Worata Klinsawat (U. of MN, Cons. Biol. 2010-2016, defended Fall 2016)  
Benjamin Lowe (U. of MN, EEB; 2008-2016, defended Spring 2016)  
Tim Polnaszek (U. of MN, EEB; 2009-2015)  
Alexis Powell (U. of MN, EEB; 2006-2012)  
Lucas Camargo (U. of MN, CS; 2015-present, orals passed Fall 2016)

*Ph.D. Advisees*

Matt Dufort (**co-advisor**; U. of MN, EEB; 2008-2015, defended September 2015)  
Tyler Imfeld (**advisor**; U. of MN, EEB; 2014-present, written prelim passed Fall 2016)  
Hernan Vazquez-Miranda (**co-advisor**; U. of MN, EEB; 2008-2014, defended )  
Michael Wells (**advisor**; U. of MN, EEB; 2009-2015, defended November 2015)

*Ph.D. Examining Committees*

Alejandro Velez (U. of MN, EEB; Spring 2012)

**VI) SERVICE AND PUBLIC OUTREACH:**

**A) EXTRAMURAL SERVICE**

*North American Check-list Committee, American Ornithologists' Union:* March 2008-2013.

*Editorial Board:* Systematic Biology (January 2001-January 2008; October 2011-present)

*Genome 10K Bird Working Group, co-Chair:* March 2010-2015

*Journal Referee:*

The Auk; American Museum Novitates; American Naturalist; Behavioral Ecology and Sociobiology; Biological Journal of the Linnean Society; Biology Letters; BMC Evolutionary Biology; BMC Genomics; The Condor; Current Zoology; Evolution; Fungal Genetics and Biology; Heredity; Ibis; Journal of Avian Biology; Journal of Biogeography; Journal of Experimental Biology, Part B; Journal of Ornithology; Mitochondrial DNA; Molecular Biology and Evolution; Molecular Phylogenetics and Evolution; New Phytologist; Organisms, Diversity, and Evolution; Ornitología Neotropical; PeerJ; PLoS Genetics; PLoS ONE; Proceedings of the Royal Society of London, Series B; Systematic Biology; Western Birds; Wilson Journal of Ornithology; Zoologica Scripta; Zoology (formerly Zoologische Jahrbücher); Zootaxa.

*Grant Referee:*

National Science Foundation

DEB Population and Evolutionary Processes

DEB Early Career

DEB Systematics Panel

Other Funding Sources

American Philosophical Society, Lewis and Clark Fund for Exploration and Field Research

City University of New York, Research Award Program, Professional Staff Congress

**B) INTRAMURAL SERVICE**

*Committees*

EEB Post-tenure Review Committee: Spring 2016-present

EEB Seminar Committee: Fall 2009-Spring 2011, Fall 2012-2013

EEB Graduate Admissions Committee: Fall 2011, Fall 2012

EEB Behavior Search Committee (ending in successful hire): Fall 2008-Spring 2009

Bell Museum Tree of Life exhibit design committee: Fall 2009-Fall 2011

MSI RISS Bioinformatics Analyst Search Committee: Spring 2011-Fall 2011 (2 rounds)

MSI Lab and Software Planning Committee: Fall 2011

*Review*

EEB Written Preliminary Exam Review Panel (Fall 2011)

EEB Doctoral Dissertation Fellowship Applications (2010: 4)

EEB Written Preliminary Exams (2009: 2; 2015: 1)  
EEB Preliminary Exam Writing Seminar (2009: 5)  
EEB Elmer C. Birney Fellowship (2006: 11, 2007: 10)  
Bell Museum Dayton-Wilkie Natural History Funds (2003: 28, 2004: 32, 2006: 35, 2008: 33)  
Bell Museum Fellowship in Avian Conservation (2007: 4)

*Content Review and Exhibit Planning*

Bell Museum, New Museum Exhibit Planning (2015-present)  
Bell Museum, Audubon and the Art of Birds Exhibit (2013)  
Bell Museum, Birds & DNA: Biodiversity and Mountain Islands (2013)

*Mentorship*

EEB Graduate Evolution Reading Group (Fall 2007)

**C) OUTREACH**

*Museum Outreach*

Bell Museum, *Bioblitz*, Scientific Coordinator: Spring 2009-present (2009: Crosby Farm Park [235 public, 64 scientist/volunteer participants], 2010: Vermillion Highlands [125 public, 53 scientist/volunteer participants], 2011: Katharine Ordway Natural History Study Area [55 public, 64 scientist/volunteer participants], 2012: Cedar Creek Ecosystem Science Reserve [61 public, 57 scientist/volunteer participants], 2013: Coldwater Spring, Mississippi National River and Recreation Area)  
Bell Museum, *Saturday With a Scientist*: October 2013, October 2016  
Collections tours: 2012: 4 (~12 participants/tour)

*Lectures and Presentations*

**Barker, F.K.** Mapping Change and Minnesota Biodiversity Atlas: Citizen Science and Museum Practice in the Digital Age. Minnesota Ornithologists Union, December 2016.  
**Barker, F.K.** Genetic Insights into the Evolution of Red-winged Blackbirds (*Agelaius phoeniceus*). Minnesota Ornithologists Union, December 2016.  
**Barker, F.K.** Little brown jobs: Phylogeny and species limits in wrens. Minnesota Ornithologists Union, December 2015.  
**Barker, F.K.**, and S.A. Jansa. Evolution 101. ASN/SSE/SSB 2008.  
**Barker, F.K.** Origins and evolution of the North American passerine fauna. Cornell Laboratory of Ornithology, Cornell University; March 2005.  
**Barker, F.K.** From molecules to earth history: an introduction to passerine phylogeny and biogeography. Minnesota Quality Teacher Network, sponsored by the Minnesota Department of Education; 2005.