

# Matthew J. Miller

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## EDUCATION

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2008 – present	Postdoctoral Fellow, Smithsonian Tropical Research Institute
2008	PhD, Biological Sciences, University of Alaska Fairbanks
2001	MS, Ecology and Evolutionary Biology, University of Arizona
1997 – 1998	Graduate Study, Latin American Studies, University of Arizona
1996	BA with Distinction, Biology, Swarthmore College

## PUBLICATIONS

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(ISI ResearcherID: B-4560-2008)

- In Press O.G. López Ch., A. Santos M., C. Aguilar, D. Quintero A., **M.J. Miller**. Nuevo registro para Panama de *Pelecitus helicinus* (Molin, 1860) (Filarioidea: Onchocercidae) como parasito subcutaneo de *Arremon aurantiirostris* (Passeriformes: Emberizidae). *Technociencia*.
- M.J. Miller**, J.T. Weir, G.R. Angehr, P. Guitton M., E. Bermingham. An ornithological survey of Piñas Bay, a site on the Pacific coast of Darién Province, Panama. *Boletín of the Sociedad Antioqueña de Ornitología*.
- 2011 **M.J. Miller**. [Review of] The Birds of Panama: A Field Guide. *Wilson Journal of Ornithology* **123**: 856 – 858.
- M.J. Miller**, M. Lelevier, E. Bermingham, J. Klicka, P. Escalante, K. Winker. Phylogeography of the Rufous-tailed Hummingbird (*Amazilia tzacatl*). *Condor* **113**: 806 – 816.
- 2010 J.C. Chaves, A.M. Cuervo, **M.J. Miller**, C.A. Cadena. Revising species limits in a trans-Andean group of *Myrmeciza* antbirds reveals a cryptic species within *M. laemosticta* (Thamnophilidae). *Condor* **112**: 718 – 730.
- M.J. Miller**, E. Bermingham, K. Winker. Neotropical birds show a humped distribution of genetic diversity along a latitudinal transect. *Ecology Letters* **13**: 576-586.
- M.J. Miller**. [Review of] The Birds of the Republic of Panama, Part 5. Gazetteer and Bibliography. *Wilson Journal of Ornithology* **120**: 196-205.
- 2009 S. Woltmann, R.S. Terrill, **M.J. Miller**, M.L. Brady. Chestnut-backed Antbird (*Myrmeciza exsul*), *Neotropical Birds Online* (T. S. Schulenberg, Ed.). Ithaca: Cornell Lab of Ornithology.

- 2008 J.T. Weir, E. Bermingham, **M.J. Miller**, J. Klicka, M.A. González. Phylogeography of a morphologically diverse Neotropical montane species, the Common Bush-Tanager (*Chlorospingus ophthalmicus*). *Molecular Phylogenetics and Evolution* **47**: 660-664.
- M.J. Miller**, E. Bermingham, J. Klicka, P. Escalante, F.S. Raposo do Amaral, J.T. Weir, K. Winker. Out of Amazonia again and again: episodic crossing of the Andes promotes diversification in a lowland flycatcher. *Proceedings of the Royal Society B* **275**: 1133-1142.
- 2007 **M.J. Miller**, E. Bermingham, R.E. Ricklefs. Historical biogeography of the New World Solitaires *Myadestes* (Turdidae). *Auk* **124**: 868-885.
- 2006 F.S. Raposo do Amaral, **M.J. Miller**, L.F. Silveira, E. Bermingham, A. Wajntal. Polyphyly of the hawk genera *Leucopternis* and *Buteogallus* (Aves, Accipitridae): multiple habitat shifts during the Neotropical buteonine diversification. *BMC Evolutionary Biology* **6**:10.

**FELLOWSHIPS, GRANTS, CONTRACTS, AND AWARDS**  
**(1,187,000 USD over 11 years; 882,000 USD directly assignable)**

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- 2011 Renewal Award: NIH Award: Dynamics of Cross Species Influenza Transmission (200,000 USD)
- Smithsonian Grand Challenges Award for: Tropical vertebrate diversity loss and the emergence of tick-borne diseases: a pilot to develop SIGEO for monitoring wildlife and diseases (100,000 USD, one of 13 co-investigators).
- 2010 – 2011 Renewal Award: CDC Inter-Agency Award for: Effect of Anthropogenic Climate Change on the Ecology of Zoonotic and Vector-borne Diseases (103,000 USD, one of 12 co-investigators [23,000 USD assignable to arbovirus project])
- Renewal Award: NIH Award: Dynamics of Cross Species Influenza Transmission (200,000 USD)
- 2009 – 2010 NIH Award: Dynamics of Cross Species Influenza Transmission (200,000 USD)
- 2009 – 2011 Smithsonian Institute Molecular Evolution Fellowship (94,000 USD)
- 2009 – 2010 CDC Inter-Agency Award for Effect of Anthropogenic Climate Change on the Ecology of Zoonotic and Vector-borne Diseases (185,000 USD, one of 12 co-investigators [60,000 USD assignable to Arbovirus project])
- 2007 – 2008 Smithsonian Tropical Research Institute Pre-Doctoral Fellowship (25,000 USD)
- 2007 Proyecto Gavilan: Inventory of the Birds of Upper Rio Changuinola, Panama (30,000 USD)
- 2006 National Science Foundation Travel Award for NAOC Meeting (1,000 USD)

- Travel Grant Award, Graduate School, University of Alaska Fairbanks (600 USD)
- 2005 – 2006 Thesis Completion Fellowship, University of Alaska Fairbanks (8,500 USD)
- 2004 Graduate College Fellowship, University of Alaska Fairbanks (8500 USD)
- Frank M. Chapman Mem. Fund, American Museum of Natural History (2,500 USD)
- 2003 – 2004 EPSCoR Graduate Research Fellowship, University of Alaska (16,000 USD)
- 2003 Frank M. Chapman Mem.Fund, American Museum of Natural History (2,000 USD)
- 2002 Angus Gavin Memorial Bird Research Grant, University of Alaska (10,000 USD)
- 2001 Frank M. Chapman Mem.Fund, American Museum of Natural History (1,000 USD)

#### **INSTITUTIONAL TALKS, INVITED SEMINARS, AND SYMPOSIA PRESENTATIONS**

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- 2011 Symposium on Species Limits in Birds, Neotropical Ornithological Conference  
National Museum of Natural History, Department of Vertebrate Zoology  
University of Panama, Undergraduate Bioferia Invited Symposium
- 2010 Occidental College, Department of Biology  
Swarthmore College, Department of Biology  
Smithsonian Tropical Research Institute, Fellows Symposium
- 2009 Smithsonian Tropical Research Institute, Tupper Seminar
- 2008 Gorgas Memorial Institute, 80<sup>th</sup> Anniversary Symposium
- 2006 Smithsonian Tropical Research Institute, Influenza Pandemic Symposium
- 2007 University of Alaska Fairbanks, Department of Biology and Wildlife
- 2006 Harvard University, Museum of Comparative Biology
- 2000 University of Arizona, Department of Latin American Studies
- 2000 University of Arizona, Department of Ecology and Evolutionary Biology

#### **MEETING PRESENTATIONS**

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- 2010 Society for the Study of Evolution, Portland, USA
- 2009 International Barcode of Life Conference, Mexico City, Mexico  
American Ornithologists Union, Philadelphia, USA
- 2007 Neotropical Ornithological Conference. Maturín, Venezuela
- 2006 North American Ornithological Conference. Veracruz, Mexico  
Society for the Study of Evolution, Long Island, USA
- 2005 Society for the Study of Evolution, Fairbanks, USA
- 2004 American Ornithologists Union, Quebec City, Canada
- 2002 Alaska Bird Conference, Fairbanks, USA
- 1999 Neotropical Ornithological Conference. Monterrey, Mexico.

#### **STUDENTS AND INTERNS SUPERVISED**

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- On-going Oscar G. López Ch. (Panama) MS Thesis supervised: *Biomonitoring of heavy metals in shorebirds*. Universidad Marítima Internacional de Panamá.

Ana M. Jiménez (Panama) MS Thesis supervised: *Diet variation in obligate versus facultative avian insectivores from central Panama*. Universidad de Panamá.

Claudia Rosales (Colombia) Intern *AFLPs of avian contact zones in Panama*

Wayra Navia (Bolivia) Intern *Molecular diagnosis of avian diseases*

Daniel Butirago (Panama) Intern *Biological collections management*

José Alejandro Ramírez (Colombia) Intern *Biological collections management*

Jorge Garzon (Panama) Intern *Biological collections management*

Betzaida Toribio (Panama) Intern *Biological collections management*

2010 Rochelle Rozette (Panama) Thesis supervised: *Taxonomic causes of variation in quality of avian DNA barcode sequences*. BS, Universidad de San Martín de Panamá.

Fabiana Sanjur (Panama) Thesis supervised: *Taxonomic causes of variation in quality of avian DNA barcode sequences*. BS, Universidad de San Martín de Panamá.

2009 – 2010 Celestino Aguilar (Panama) Intern: *Museum specimen preparation*

Andrea Baquero (Colombia) Intern: *CDC Field Expeditions and Multi-locus Historical Demography of *Amazilia handleyi**

2007 – 2008 Oscar G. López Ch. (Panama) Intern: *Gavilan Project Field Expeditions*

Jorge Avendaño (Colombia) Intern: *Gavilan Project Field Expeditions*

Paula Pulido (Colombia) Intern: *Gavilan Project Field Expeditions and Historical Biogeography of the southern Selasphorus*

2006 Mérida Núñez (Panama) Intern: *Phylogeography of *Myrmeciza exsul**

Michael Lelevier (USA) Intern: *Comparative Phylogeography of Mesoamerican Birds*. Work resulted in MS, University of Alaska Fairbanks.

## **TEACHING EXPERIENCE**

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2003 Field Ornithology Special Course  
Zoology Museum, Universidad San Antonio Abad. Cusco, Peru.

2001 Graduate Teaching Assistant, Introduction to Biology (ECOL 182)  
Ecology & Evolutionary Biology, University of Arizona, Tucson, USA

2000 Graduate Teaching Assistant, Environmental Biology (ECOL 206)  
Ecology & Evolutionary Biology, University of Arizona. Tucson, USA

- 1999 Graduate Teaching Assistant, Ecology (ECOL 302)  
Ecology & Evolutionary Biology, University of Arizona. Tucson, USA
- Graduate Teaching Assistant, Marine Biology Short Course  
Ecology & Evolutionary Biology, University of Arizona. Tucson, USA
- 1996 – 1997 Humanities Teacher (Secondary School)  
Monteverde Friends School, Monteverde, Costa Rica
- 1995 Teaching Assistant, Marine Biology  
Biology Department, Swarthmore College, Swarthmore, USA

### **FIELD EXPEDITIONS ORGANIZED & LED**

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| Western Darien Province, 2011                 | Satipo Road, Junin, Peru 2004                |
| Panama Canal Watershed, 2010                  | Centro Pucani, Ucayali, Peru 2004            |
| Santa Fe, Veraguas, Panama, 2010              | Tidal Mudflats, Ica, Peru 2004               |
| Chiriqui and Serranía de Tabascá, Panama 2009 | Volcan Baru, Chiriqui, Panama 2004           |
| Lago Bayano, Panama, Panama 2009              | Cerro Azul, Panama, Panama 2004              |
| Bay of Panama, Panama, Panama 2008-9          | Piñas Bay, Darien, Panama 2003               |
| Rio Changuinola, Bocas del Toro, Panama 2007  | Centro Pucani, Ucayali, Peru 2003            |
| Achiote, Colon, Panama 2007                   | Andean Highlands, Cusco, Peru 2003           |
| Bay of Panama, Panama, Panama 2007            | Canal Watershed Coclé & Panama, Panama 2002  |
| Santa Fe, Veraguas, Panama 2006               | Arctic Coastal Plain, Alaska, USA 2002       |
| Pearl Islands, Panama, Panama 2006            | Wet Forest, Esmeraldas, Manabí, Ecuador 2001 |
| Serranía de Maje, Darien, Panama 2006         | Tiputini, Napo, Ecuador 2001                 |
| Cana, Darien, Panama 2006                     | Wet Forest, Esmeraldas, Ecuador 2000         |
| Highlands & Dry Forest, Chiriqui, Panama 2006 | Tiputini, Napo, Ecuador 2000                 |
| Bay of Panama, Panama, Panama 2005            | Amazonia, Sucumbios, Napo, Ecuador 1999      |
| Achiote, Colon, Panama 2005                   |  |

### **NATURAL HISTORY COLLECTIONS EXPERIENCE**

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| 2008 – present | Founder & Lead Investigator, Smithsonian Tropical Research Institute Bird Collection       |
| 2008 – present | Scientist in Charge, Smithsonian Tropical Research Institute Bird Frozen Tissue Collection |
| 2002 – 2008    | Curatorial Assistant, Bird Collection, University of Alaska Museum                         |

#### STRI Bird Collection Facts:

~ 4000 Round Skin Vouchers (~ 1200 skins/year growth)

#### Voucher-Associated Collections:

- Frozen Tissues: muscle, kidney, liver (DNA, trace contaminants)
- Buffered Blood (Haemoparasites)
- Ectoparasites
- Frozen Intestines (Influenza screening, endoparasites)

- Skeleton
- Stomach Contents

2 Full-time, 5 Part-time Collections Assistants  
 2 Ongoing Masters Theses  
 100% Extramural Funding

**STRI Bird Frozen Tissue Collection Facts:**

Founded in 1995 as a national repository for tissues of birds collected during Panama expeditions led by foreign museums  
 ~ 13,000 vouchered tissue of Panamanian birds  
 ~ 1,000 vouchered tissues from birds outside Panama  
 ~ 3,000 unvouchered tissues from West Indies  
 ~ 1,500 unvouchered pedigree tissues from Darwin's Finches  
 Among the top 10 largest bird frozen tissue collections in the world

**Personal Scientific Collecting Facts:**

Over 7,500 birds collected (vouchers deposited in Museo Ecuatoriano de Ciencias Naturales, Quito, Ecuador; University of Alaska Museum; Fairbanks, Alaska; Museo de Historia Nacional, Universidad San Marcos, Lima, Peru; Museo de Vertebrados, Universidad de Panama, Panama, Panama; Marjorie Barrick Museum, Las Vegas, Nevada; LSU Museum of Zoology, Baton Rouge, Louisiana; Cornell Laboratory of Ornithology, Ithaca, New York

**PEER REVIEW**

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Auk	Condor
Austrian Science Fund	Evolution
BMC Evolutionary Biology	Journal of Avian Biology
Biological Journal of the Linnean Society	Molecular Phylogenetics and Evolution
Centre National de la Recherche Scientifique	Molecular Ecology
France) Nouragues Research Grants Program	Wilson Journal of Ornithology

**PROFESSIONAL SOCIETIES**

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American Association for the Advancement of Science  
 American Ornithologists' Union  
 Association of Field Ornithologists  
 Cooper Ornithological Society  
 Neotropical Ornithological Society  
 Society for the Study of Evolution  
 Wilson Ornithological Society

**CONSERVATION EXPERIENCE**

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1997 – 1999	Mesoamerican Program Coordinator The Wildlands Project, Tucson, AZ.
1992 – 1995	Forest Activist Eastern Forests & Mountains Conservation Swarthmore College, Swarthmore, PA.

## **MISCELLANEOUS**

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Fluent in Spanish (ILR Level 4), basic reading knowledge of French.

Participated in a UAM contract assignment for the forensic identification of wildlife carcasses using museum specimens.