

## JASON L. BROWN

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### EDUCATION

- 2010–Current National Science Foundation Postdoctoral Research Fellow in Biological Informatics. **University of Michigan** (Dr. Lacey Knowles), **Technical University of Braunschweig** (Dr. Miguel Vences), **Duke University** (Dr. Anne Yoder).
- 2009–2010 Postdoctoral Researcher. Department of Biology, **Duke University**, Dr. Anne Yoder
- 2003–2009 **Ph. D.** Interdisciplinary Doctoral Program in Biological Sciences. Department of Biology, **East Carolina University** (ECU), Greenville NC Advisor: Dr. Kyle Summers Dissertation Title: “A key ecological trait drives the evolution of monogamy in a Peruvian poison frog”
- 1999–2003 **B. A.** (Cum Laude) Biology and Chemistry Double Major: Emphasis in Biotechnology. **Minnesota State University Moorhead** (MSUM), Moorhead MN

### PUBLICATIONS

- Crottini A, **Brown JL**, Mercurio V, Glaw F, Vences M, Andreone F. The phylogeography of the poison frog *Mantella viridis* Pintak & Böhme, 1988 (Amphibia: Mantellidae) reveals chromatic and genetic differentiation across ecotones in northern Madagascar. *Journal of Zoological Systematics and Evolutionary Research* –in press
- Chan L, **Brown JL**, Yoder AD (2011). Integrating statistical genetic and geospatial methods brings new power to phylogeography. *Invited Review for Molecular Phylogenetics and Evolution*. 59:2, 523-537
- Barrett MA, **Brown JL**, Morikawa M, Labat JL, Yoder AD (2010). Modeling the effects of illicit rosewood logging in Madagascar: A call for CITES designation. *Science* 328: 1109–1110
- Perez-Peña P, Chavez G, Twomey EM, **Brown JL** (2010). Two new species of *Ranitomeya* (Anura: Dendrobatidae) from eastern Amazonian Peru. *Zootaxa* 2439:1–23
- Brown JL**, Maan M, Cummings M, Summers K (2010). Selection on Color in Panamanian Poison Frogs: a Coalescent Approach. *Journal of Biogeography* 37: 891–901
- Brown JL**, Morales V, Summers K (2010). A key ecological trait drove the evolution of biparental care and monogamy in an amphibian. *The American Naturalist* 175: 436–446. Highlighted in *Nature* 464: 990–991
- Brown JL**, Chouteau M, Glenn T, Summers K (2009). The development and analyses of twenty-one microsatellite loci for three species of Amazonian poison frogs. *Conservation Genetic Resources* 1: 1877–7252
- Brown JL**, Twomey EM (2009). Complicated histories: three new species of poison frogs of the genus *Ameerega* (Anura: Dendrobatidae) from north-central Peru. *Zootaxa* 2049: 1–38
- Brown JL**, Morales V, Summers K (2009). Tactical reproductive parasitism via larval cannibalism in Peruvian poison frogs. *Biology Letters* 5:148–153
- Brown JL**, Morales V, Summers K (2009). Home range size and location in relation to reproductive resources in poison frogs: a Monte Carlo approach using GIS data. *Animal Behaviour* 77 (2009): 547–554
- Brown JL**, Morales V, Summers K (2008). Divergence in parental care, habitat selection and larval life history between two species of Peruvian poison frogs: an experimental analysis. *Journal of Evolutionary Biology* 21(6): 1534–1543
- von May R, Catenazzi A, Angulo A, **Brown JL**, Carrillo J, Chávez G, Córdova JH, Curo A, Delgado A, Enciso MA, Gutiérrez R, Lehr E, Martínez JL, Medina-Müller M, Miranda A, Neira DR, Ochoa JA, Quiroz AJ, Rodríguez DA, Rodríguez LO, Salas AW, Seimon T, Seimon A, Siu-Ting K, Suárez J, Torres J, Twomey E (2008). Current state of conservation knowledge of threatened amphibian species in Peru. *Tropical Conservation Science* 1(4):376–396

**PUBLICATIONS—CONTINUED**

- Brown JL**, Twomey EM, Pepper M, Sanchez-Rodriguez M (2008). Revision of the *Ranitomeya fantastica* species complex with description of two new species from Central Peru (Anura: Dendrobatidae). *Zootaxa* 1823: 1–24
- Twomey EM, **Brown JL** (2008). A partial revision of the *Ameerega hahneli* complex and a new cryptic species from the East- Andean versant of Central Peru. *Zootaxa* 1757:49–65
- Twomey EM, **Brown JL** (2008). Spotted poison frogs: Rediscovery of a lost species and new genus (Anura: Dendrobatiade) from Northwestern Peru. *Herpetologica* 64 (1): 121–137
- Roberts JL, **Brown JL**, Schulte R, Arizabal W, Summers K (2007). Genetic Divergence and Speciation in Lowland and Montane Peruvian Poison Frogs. *Journal of Molecular Phylogenetics and Evolution*. 41(1):149–164
- Roberts JL, **Brown JL**, von May R, Schulte R, Summers K (2006). Phylogenetic relationships among members of the genus *Dendrobates*: A molecular perspective. *Herpetological Journal*. 16 (4):377–385
- Roberts JL, **Brown JL**, Schulte R, Arizabal W, Summers K (2007). Rapid Diversification of Colouration Among Populations of a Poison Frog Isolated on Sky Peninsulas in the Central Cordillera of Peru. *Journal of Biogeography*. 34(3): 417–426
- Brown JL**, Schulte R, Summers K (2006). A new species of *Dendrobates* (Anura: Dendrobatidae) from the Amazonian Lowlands in Peru. *Zootaxa* 1152: 45–58
- Twomey EM & **Brown JL** (2005). Range extension: *Cochranella resplendens*. *Herpetological Review*, 1 page.
- Brown JL**, Vaughan AL (2003). Species note: Arboreal *Celestus*. A field observation. *Herpetological Review*, 1 page.
- Wisenden BD, Vollbrecht KA, **Brown JL** (2002). Is there a fish alarm cue? Affirming evidence from the wild study. *Animal Behavior*. 67 (1): 59–67

**PUBLICATIONS—OTHER**

- Kahn T, Lötters S, La Marca E, Grant T, **Brown JL**, Mittermeier RA. Andean Poison Frogs. Conservation International, Washington DV – *in press*
- Brown JL et. al.** Species accounts on: *Ranitomeya imitator*, *R. uakarii*, *R. fantastica*, *R. summersi*, *R. benedicta*, *R. flavovittata*, *R. sirensis*, *Excidobates mysteriosus*, *E. captivus*, *Ameerega altamazonica*, *A. basslerii*, *A. pepperi*, *A. yoshina*, *A. cainarachi* and *A. ignipedis*. In the book: Andean Poison Frogs. Conservation International, Washington DV – *in press*
- Pepper MP, Twomey E, **Brown JL** (2007). The smuggling crisis. *Leaf Litter Magazine*. Tree Walkers International. 1(1): 5-7 (not refereed)
- Brown JL** (2007). Peru's Tiny Gems (Photograph). *National Geographic Magazine*. April 2007.

**MANUSCRIPTS IN REVIEW**

- Twomey E, Yeager J, **Brown JL**, Morales V, Cummings M, Summers K. Phenotypic and Genetic Divergence Among Poison Frog Populations in a Mimetic Radiation. Target Journal: *Proceedings of the Royal Society, Biological Sciences*.
- Yeager J, **Brown JL**, Morales V, Cummings M, Summers K. Testing for Selection on Color and Pattern in a Mimetic Radiation. Target Journal: *Current Zoology*
- Brown JL.**, Twomey E, Amézquita A., Barbosa de Souza M, Caldwell JP, Lötters S, von May R, Melo-Sampaio PR, Mejía-Vargas D, Perez-Peña P, Pepper M, Poelman EH, Sanchez-Rodriguez M, Summers K. A Taxonomic Revision of the Neotropical Poison Frog Genus *Ranitomeya* (Amphibia: Dendrobatidae). Target Journal: *Zootaxa*

**PROFESSIONAL EXPERIENCE**

- 2010–Current *NSF Postdoctoral Fellow: Duke University, Primary Host: Dr. Anne Yoder*  
Integrated geospatial techniques (GIS and species distribution modeling) into assessing the phylogeography of Malagasy flora and fauna.
- 2009–2010 *Postdoctoral Researcher: Duke University, Laboratory of Dr. Anne Yoder*  
Merging population genetic and geospatial analyses brings new power to phylogeography.
- 2006–2009 *Laboratory Manager and Researcher: East Carolina University, Laboratory of Dr. Kyle Summers*  
Managed a molecular laboratory that focused on DNA sequencing and DNA fingerprinting. Trained and managed undergraduate and graduate lab workers (2-6 people per semester) and supervised, or performed research, on multiple projects pertaining to the evolution of poison frog mating systems, biogeography, phylogenetics and taxonomy.
- 2003–2008 *Field Researcher: San Martin, Peru*  
Investigated the key behavioral and ecological differences between two species of poison frogs. Coordinated most aspects of a NSF funded project (field crew 2-5 people) for 3-4 months each year in northern Peru (total of 19 months). Managed finances, travel logistics, housing and hiring of local assistants. Obtained research and export permits, and oversaw experimental design and implementation.
- 2005–2006 *Teaching Assistant: East Carolina University*  
Taught upper-level labs in cell vertebrate physiology (2 semesters) and herpetology (2 semesters). Responsible for developing introductory lectures, supervising labs and grading. Facilitated capturing and identifying species in the field and laboratory.
- 2003–2005 *Research Fellow: East Carolina University*  
Held a competitive research fellowship from Brody School of Medicine.
- 2003 *Resident Naturalist: San Luis Ecological and Biological Reserve, Santa Elena, Costa Rica*  
Led collegian tours in local reserves and instructed classes on tropical ecology, botany, entomology, herpetology and field techniques for five months. Also facilitated the use of resources and facilities of San Miguel Biological Station- Cabo Blanco Absolute Reserve for the Organization for Tropical Studies (OTS) Graduate Course during July.
- 2003 *Teaching Assistant: University of Georgia Athens, Athens, Georgia*  
Assisted Drs. Milton and Diana Lieberman teach a course in tropical ecology in Costa Rica during UGA's Maymester (two months). Facilitated field projects and led discussions on research techniques and experimental design.
- 2002–2003 *Supplemental Instruction Leader: MSUM*  
Facilitated cooperative learning session in introductory biology. Led review session and mock exams for undergraduate students.
- 2001–2003 *Research Assistant: Dragon Tech Biotechnology, Moorhead, MN*  
Served as independent researcher in an industrial research and development environment. Responsible for reverse affinity chromatography, plasmid DNA production and purification.
- 2000–2003 *Undergraduate Researcher: Minnesota State University Moorhead*  
Served as an independent undergraduate researcher in the labs of Drs. Michelle Malott, Brian Wisenden, and Donna Bruns-Stockrahm. Performed microsatellite DNA fingerprinting, quantified fish behaviors, collected and trapped: fishes, prairie dogs and painted turtles.

**AWARDS AND HONORS**

- 2010–2012 Postdoctoral Research Fellow, National Science Foundation
- 2010 Doctoral research featured in *Nature: Ways to raise tadpoles*. Kokko H & Jennings M. 464: 990–991
- 2010 Doctoral research featured in *Current Biology: Animal Behavior: The family that works together, stays together*. Ryan, M. J. *Current Biology*. 20 (9): R403-R404
- 2008 ECU Graduate School Travel Award for travel to 6<sup>th</sup> World Herpetology Congress, Manaus, Brazil. \$800
- 2008 ECU Biology Department Travel Grant for travel to 6<sup>th</sup> World Herpetology Congress, Manaus, Brazil (\$500) and to Evolution Conference, Minneapolis, MN(\$300).
- 2005–2008 ECU Biology Graduate Student Association Travel Award: 6<sup>th</sup> World Herpetology Congress, Manaus, Brazil \$400 (2008); South Eastern Ecology, Population Genetics, and Evolution Conference (SEEPAGE), Tremont, TN \$250 (2007) and Southeastern Ecology and Evolution Conference, Athens, GA, \$250 (2005)
- 2003–2005 Research Fellow, Brody School of Medicine, East Carolina University, Greenville, NC

**GRANTS FUNDED**

- Brown JL.** “Integrating species distribution models, Geographic Information Systems and coalescent phylogenetic methods into phylogeography studies” National Science Foundation. \$189,000 (DBI-0905905, 2010–2012)
- Summers K. “Sexual conflict and parental care in Peruvian poison frogs” National Science Foundation. Coauthor and primary researcher: **JL Brown** \$232,000 (IOB-0544010, 2006–2009)
- Summers K, **Brown JL.** East Carolina University: Internal Seed Grant, Special Awards, coauthored \$30,000 (2005)
- Summers K, **Brown JL.** National Geographic, coauthored \$21,000 (7658-04, 2004)

**INVITED SYMPOSIA**

- 2011 **Brown JL.** A key ecological trait drives the evolution of monogamy in a Peruvian poison frog. Department of Evolution Seminar. Technical University of Braunschweig, Braunschweig, Germany
- 2011 **Brown JL.** Why phylogeny matters: an introduction to comparative phylogenetic methods and common uses in evolutionary and ecological studies. Evolutionary Ecology Seminar. University of California- Irvine . Irvine, CA.
- 2010 **Brown JL.** Integrating species distribution models, geographic information systems and population genetics into phylogeography studies. Department of Evolution Seminar. Technical University of Braunschweig, Braunschweig, Germany
- 2010 **Brown JL.** Integrating GIS, species distribution modeling and phylogeography. Systematics Discussion Group Seminar. Duke University, Durham, NC
- 2010 **Brown JL.** A key ecological trait drove the evolution of monogamy and biparental care in a Peruvian poison frog. Behavioral, Population And Community Ecology Seminar. Duke University, Durham, NC
- 2008 **Brown JL, Morales V, Summers K.** A key ecological trait drives the evolution of monogamy in a Peruvian poison frog. Poison Frog Symposium. 6<sup>th</sup> World Herpetology Congress. Manaus, Brazil
- 2008 Amphibia Tree Workshop: Predictive Species Distribution Modeling Using Tree Data. December 5–6, Berkeley CA. Invited Participant

**SELECTED PRESENTATIONS**

- 2010 **Brown JL**, Chan L, Yoder AD. Integrating species distribution models, geographic information systems and population genetics into phylogeography studies. Evolution 2010, Portland, OR
- 2008 **Brown JL**, Twomey E. The description of five new species of Peruvian poison frogs. Poster. 6<sup>th</sup> World Herpetology Congress. Manaus, Brazil
- 2008 **Brown JL**, Summers K. A key ecological trait drives the evolution of monogamy in a Peruvian poison frog. Evolution Conference. University of Minnesota, Minneapolis, MN
- 2006 **Brown JL**, Summers K. Evaluating sexual selection in Amazonian poison frogs: A field study. South Eastern Ecology Population Genetics and Evolution Conference. University of North Carolina, Greensboro, NC
- 2006 **Brown JL**, Summers K. Tadpole deposition strategies of Peruvian poison frogs: A field study. South Eastern Ecology and Evolution Conference. University of Alabama, Tuscaloosa, AL
- 2005 **Brown JL**. Phylogenetic relationships among members of the genera *Dendrobates* and *Minyobates*. Graduate Student Research Day at East Carolina University, Greenville NC
- 2002 **Brown JL**, Wisenden BD. Synergistic interaction between chemical and visual indicators of predation risk. Poster presentation at the Annual meeting of the Animal Behavior Society; University of Indiana, Bloomington, IN

**PROFESSIONAL SERVICE**

- 2011 Contributor and Scientific Advisor: Frog s issue, YES MAG March/April 2011
- 2011 Scientific Advisor NHK. Rainforest Jewels; Natural history and biparental care of *R. imitator*
- 2010 Ask-A-Scientist Night. Provided advice on science fair experiments for Rancho San Joaquin Middle School students, Irvine CA.
- 2007-2011 Peer Reviewer: Journal of Biogeography (2008-2011), Zootaxa (2008–2010), South Eastern Naturalist (2007), Evolution (2009–2010), Journal of Natural History (2009), Behavioral Ecology and Sociobiology (2010), Evolutionary Ecology (2010), Herpetological Journal (2010), Herpetologica (2011), Ethology Ecology & Evolution (2010), Salamandra (2010), American Museum Novitates.(2010), Biological Journal of the Linnean Society (2011), PLOS One (2011).
- 2008-2009 Film, photo and scientific contributor (as donations): Big Imaginations, Inc.
- 2006-2008 Scientific advisor for BBC Life in Cold Blood Episode II: *Land Invaders*
- 2005-2007 Board member of Tree Walkers International: Academic Seat
- 2007–2008 Science Olympiad Event Leader: Experimental Design. NC Regional Finals. Greenville, NC
- 2005–Current Cofounder of, a website dedicated to Peruvian Poison frogs
- 2004–2006 Field consultant: Instituto de Investigación de la Biología de las Cordilleras Orientales (INIBICO) Frogs for the Forest Initiative.
- 2004–2006 Founded the charity “Fight Rural Poverty in Peru” which raised \$1600
- 2003–2009 Active member of the Biology Graduate Student Association  
Acted as student faculty representative 2008-2009 academic year  
Acted as historian during 2006–2007 academic year  
Acted as treasurer during 2004–2005 academic year
- 2003–2006 Active member of the ECU Environmental Action Committee  
Acted as chair of the committee 2004–2006
- 2002–2003 Dean’s Academic Advisory Council, MSUM
- 2002 Teacher assistant for Microbiology (Volunteer)
- 2001–2003 Volunteer animal keeper at Red River Valley Zoo, Fargo, ND

**GRADUATE MENTORSHIP**

- 2010–2011 **Meredith Barrett** of Duke University. Lemur disease ecology: Linking health, ecosystem viability, and conservation in Madagascar (Coauthored publication in Science)
- 2009-2010 **Pedro Perez-Peña** of FUNDAMAZONIA, Iquitos, Peru. Training future taxonomists: *Ranitomeya* systematics (Coauthored publication in Zootaxa)
- 2009-2010 **German Chavez** of Centro de Ornitología y Biodiversidad, Lima, Peru. Training future taxonomists: *Ranitomeya* systematics (Coauthored publication in Zootaxa)

**UNDERGRADUATE MENTORSHIP**

- 2010 **Megan Markowia** of Duke University. Modeling the effects of illicit rosewood logging in Madagascar (Coauthored publication in Science)
- 2009 **Jacqueline Rivers** of East Carolina University. Field associate in San Martin, Peru.
- 2008 **Karen Fieselman** of East Carolina University. Field associate in San Martin, Peru. Larval competition and cannibalism in *Bufo marinus*
- 2007 **Bryan Richardson** of East Carolina University. Field associate in San Martin, Peru
- 2007 **Bryan Malave** of East Carolina University. DNA fingerprinting *Ranitomeya* frogs
- 2006-2007 **Mike Odom** of East Carolina University. Analysis of D-loop between the Mullerian mimetic populations of *Ranitomeya imitator*
- 2006–2007 **Bryan Richardson** and **Mark Romano** of East Carolina University. Development and optimization of microsatellites in *Ranitomeya* poison frogs
- 2006 **Jason Prochnow** of Minnesota State University Minnesota. Field associate in San Martin, Peru
- 2005-2006 **William Franch** of East Carolina University. Analysis and development of nuclear (Rag1) primers and a phylogenetic study of Dendrobatid frogs
- 2003-2006 **Michael Abrokwah, Summer Choudhury, Toni Hamilton, Evangelyn Okereke**. Development and analysis of D-loop primers for *Dendrobates pumilio*
- 2003–2005 **Kent Harkey** of East Carolina University (Honors Thesis). Phylogeography of *Dendrobates pumilio* in Bocas del Toro, Panama (Awarded “Best Student Research”, NC Academy of Sciences, 2005)

**LANGUAGES**

English (first language)  
Spanish (advanced; ILR: level 3)

**OTHER SKILLS**

- Lab-** DNA extraction, PCR, DNA sequencing, microsatellite fingerprinting, primer design and optimization.
- Computer-** Proficient in the following programs: statistical (SPSS) , graphic design (Adobe Photoshop, Adobe Illustrator, Adobe Dreamweaver), Geographic Information Systems (ESRI ArcGIS versions 3.2 and 9.2, ERDAS Imagine), species niche-modeling (Maxent, GARP and DIVA), acoustic analysis (Raven), phylogenetic/evolution (Mesquite, MEGA, PAUP, MrBayes, ClustalX, MacClade, Sequencher, DNA Baser, ABI Genemapper) and all Microsoft Office programs. Proficient in Windows and Macintosh operating systems.
- Field-** Radio telemetry, handling and tagging: small mammals, reptiles and amphibians, DNA tissue collection, chytrid sampling and sterilization, amphibian and reptile preservation as museum specimens, map making, habitat classification, drift fence surveys, GPS data collection and navigation.

**PROFESSIONAL INTERESTS**

Anuran evolution, late tertiary and quaternary biogeography, evolution and maintenance of color and pattern polymorphism, GIS, sexual selection, speciation, species distribution modeling, mating system evolution, mimicry, neotropical herpetology, phylogenetics, taxonomy and preserving biodiversity of all types .