
BRIAN S. ARBOGAST

Associate Professor and Curator of Mammals
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Assistant Director and Co-founding Member
Wildsumaco Biological Station, Ecuador

EDUCATION

- 1999 Ph. D. Biology, Wake Forest University, Winston-Salem, North Carolina
- 1996 M. S. Zoology, Louisiana State University, Baton Rouge, Louisiana
- 1992 B. S. Biology, Wake Forest University, Winston-Salem, North Carolina

PRIMARY PROFESSIONAL POSITIONS

- 2011-present Associate Professor and Curator of Mammals, Department of Biology and Marine Biology, University of North Carolina Wilmington
- 2011-present Assistant Director, Wildsumaco Biological Station, Ecuador
- 2013-present Research Associate of Mammalogy, Museum of Comparative Zoology, Harvard University

ADDITIONAL PROFESSIONAL POSITIONS HELD

- 2008-present : Member of the Conservation Committee, American Society of Mammalogists
Co-chair of South America Region Sub-committee
- 2008-present: Coordinator of the Conservation Option for Biology Majors, UNC Wilmington, Wilmington, NC.
- 2008-present: Member of the North Carolina Scientific Council on Mammals
- 2008-present: Adjunct Associate Professor, Department of Biological Sciences, Humboldt State University, Arcata, CA.
- 2011-2012: Associate Editor, *Journal of Mammalogy*
- 2011-2012: Science Advisor, Ecology.com (*Ecology Global Science Network*)
- 2008-2011: Assistant Professor and Assistant Curator of Mammals, Department of Biology and Marine Biology, UNC Wilmington, Wilmington, NC.
- 2006-2008: Associate Professor & Curator of Mammals, Department of Biological Sciences, Humboldt State University, Arcata, CA.
- 2001-2006: Assistant Professor and Curator of Mammals, Department of Biologic Sciences, Humboldt State University, Arcata, CA.
- 1999-2001: Post-Doctoral Research Associate, Department of Zoology and Burke Museum of Natural History, University of Washington, Seattle, WA.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Society of Mammalogists- Member of Conservation Committee
Society for Conservation Biology
Society for the Study of Evolution
International Biogeography Society
The Wildlife Society

MUSEUM/ CURATORIAL EXPERIENCE

2010-present Associate Curator of Mammals, UNC Wilmington, Wilmington, NC
2001-2008 Curator of Mammals and Director of the Vertebrate Museum, Humboldt State University, Arcata, CA
2003-2005 Board of Directors, Humboldt State Museum of Natural History, Arcata, CA
1999-2001 Post-doctoral Fellow, Mammalogy Program, Burke Museum of Natural History, University of Washington, Seattle
1994-1996 Curatorial Assistant, Genetic Resources, LSU Museum of Natural Science
1992-1993 Curatorial Assistant, Mammal Collection, LSU Museum of Natural Science

RESEARCH INTERESTS

I am a mammalogist and conservation biologist who takes a multi-disciplinary approach to the study and conservation of biodiversity. My research program spans an organizational scale ranging from the genome to community assemblages, a spatial scale ranging from single canyons and mountains to entire biomes, and a temporal scale ranging from the present to the late Pliocene/ early Pleistocene. To achieve this, my colleagues, students and I use a diverse array of field techniques, molecular genetic approaches and quantitative analyses, to describe and evaluate *the current state of natural populations* (*i.e.*, contemporary population sizes, levels of genetic variability, gene flow, geographic distributions, intra- and interspecific interactions) *within a broader historical and biogeographic context*. Although my research is broad, recent projects fall into 3 major themes:

(1) Using multiple field and genetic approaches to document mammalian biodiversity in the Sumaco Region of Ecuador, a remote and isolated 3,800-m peak at the heart of the 'Tropical Andes Biodiversity Hotspot'. This work combines traditional survey methods and the use of remote camera traps to document the presence, activity patterns, community-level elevational structuring, and interspecific interactions of known species of medium-large mammals, with a special focus on species of high conservation concern. We also use these methods to identify mammals that may be new to science, to evaluate relative levels of population density, and to confirm that populations of one of the rarest species of large mammals on earth, the mountain tapir (*Tapirus pinchaque*) is breeding in the area;

(2) Cryptic speciation in the New World flying squirrels (*Glaucomys spp.*) and the largest gliding marsupial, the greater glider (*Petauroides volans*) of Australia; these studies integrate multi-locus population genetic and morphometric data to delineate species boundaries and reveal the presence of several cryptic species of gliding mammals;

(3) Active engagement with state wildlife agencies (especially those in West Virginia and North Carolina) to address landscape and population-level questions for species of high conservation concern. Examples include multi-locus, landscape genetic studies on endangered populations of the northern flying squirrel, Cheat three-tooth land snail, and Cheat Mountain salamander.

FIELD EXPERIENCE

Extensive fieldwork on mammals in North America, South America, Australia and Borneo, including: 1) collection and preparation of museum specimens for use in biogeographic, systematic, and conservation genetic studies. Major geographic concentration on the boreal forest biome of the Pacific Northwest, Rocky Mountains and Appalachian Mountains of North America; taxonomic concentration on flying squirrels, tree squirrels, terrestrial and arboreal voles, deer mice, water shrews, chipmunks, jumping mice, ermines, spotted skunks and ringtail cats; and 2) use of remote camera traps to study the population ecology, intra-guild interactions, and community-level elevational structuring of medium-large mammals along a steep elevational gradient on Sumaco Volcano, an isolated and unstudied peak in the Tropical Andes of Ecuador. Taxonomic focus on: 1) carnivores, including cats (margay, ocelot, oncilla, jaguarundi, puma), mustelids (tayra and greater grisson), procyonids (especially mountain coatis), bush dogs and spectacled bears; and 2) montane and cloud forest ungulates, including red and pygmy brocket deer and the mountain tapir. Additional research experience on the greater glider of Australia (the world's largest gliding marsupial), giant and pigmy squirrels in the canopy of Mt. Kinabalu National Park, Borneo and birds in the Galápagos Archipelago.

TEACHING EXPERIENCE

Full Courses

Conservation Biology
Mammalogy and Lab
Advanced Mammalogy and Lab
Advanced Conservation Biology and Lab
Tropical Ecology and Biodiversity in Ecuador
Biogeography
Advanced Biogeography
Advanced Ecology and Lab
Evolutionary Developmental Biology

Seminar Courses

Conservation Biology of Carnivores
Biology of Marsupials
Phylogeny, Ecology and Behavior
Ice Age Extinctions

PUBLICATIONS (PEER-REVIEWED)

¹Undergraduate Student; ²MS Student, ³Currently in or has completed PhD; *Student at Humboldt State University

Arbogast, BS. 2017. *Phylogenomic Data Acquisition: Principles and Practice*, by WB Jennings (Book Review). *Trends in Ecology and Evolution*. In press.

Arbogast, BS, KI Schumacher^{2,3}, NJ Kerhoulas^{*2,3}, AL Bidlack, JA Cook, and GJ Kenagy. 2017. Genetic data reveal a cryptic species of New World flying squirrel: *Glaucomys oregonensis*. *Journal of Mammalogy* 98:1027-1041. DOI: <https://doi.org/10.1093/jmammal/gyx055>

- Editor's Choice of the Literature, *Science*, August 4, 2017. <http://science.sciencemag.org/content/357/6350/twil>
- Featured by *National Geographic*, May 30, 2017. Meet This Newly Discovered Flying Squirrel: North America's newest mammal, Humboldt's flying squirrel, helps solve an evolutionary mystery. URL: <http://news.nationalgeographic.com/2017/05/flying-squirrel-new-species-north-america/>
- Arbogast interviewed on Oregon Public Radio, June 20, 2017. <http://ijpr.org/post/new-flying-squirrel-identified-northwest#stream/0>
- Editor's Choice, *Journal of Mammalogy* (August, 2017 Issue).
- Additional featured articles by *Canadian Broadcast Company*, *Canadian Geographic*, *Mongabay.com*, *The Wildlife Society* and many other newspapers and web sites.

Arbogast, BS, AMC. Hodge^{2,3}, and JB Coltrain. 2017. Stable isotope analysis of dietary overlap between the endangered red wolf and sympatric coyote in northeastern North Carolina. *Southeastern Naturalist* 16:283-296.

Arbogast, BS. 2017. *The Return of the Unicorns: The Natural History and Conservation of the Greater One-Horned Rhinoceros* by E. Dinerstein (Book Review). *Journal of Mammalogy* 98:1216-1218.
DOI: <https://doi.org/10.1093/jmammal/gyx083>

Hodge, AMC^{2,3}, and BS Arbogast. 2016. Carnivore diversity at a montane rainforest site in Ecuador's Gran Sumaco Biosphere Reserve. *Oryx: The International Journal of Conservation* 50: 474-479.

Cook, JA, S Greiman, S Agosta, RP Anderson, BS Arbogast, et al. 2016. Transformational principles for NEON sampling of mammalian parasites and pathogens: a response to Springer and Colleagues. *BioScience* 66:917-919.

Chavez, AS, SP Maher, BS Arbogast, and GJ Kenagy. 2014. Diversification and gene flow in nascent lineages of island and mainland North American pine squirrels (*Tamiasciurus spp.*). *Evolution* 68:1094-1109.

Manly, B¹, BS Arbogast, DS Lee, and M Van Tuinen. 2013. Mitochondrial DNA analysis reveals substantial population structure within the endangered Black-capped Petrel (*Pterodroma hasitata*). *Waterbirds* 36:228-233.

Lovette, IJ, BS Arbogast, RL Curry, RM Zink, CA Botero, JP Sullivan, AL Talaba, RB Harris, Rubenstein, RE Ricklefs, and E Bermingham. 2012. Phylogenetic relationships of the mockingbirds and thrashers (Aves: Mimidae). *Molecular Phylogenetics and Evolution* 63:219-229.

Vanderhoff, EN., AMC Hodge^{2,3}, BS Arbogast, J Nilsson, and TW Knowles. 2011. Abundance and activity patterns of the margay (*Leopardus wiedii*) at a mid-elevation site in the Eastern Andes of Ecuador. *Journal of Neotropical Mammalogy* 18:271-279.

Kerhoulas, NJ*^{2,3} and BS Arbogast. 2010. Molecular Systematics and Pleistocene Biogeography of Mesoamerican Flying Squirrels. *Journal of Mammalogy* 91:654-667.

Arbogast, BS. 2007. A brief history of the New World flying squirrels: Phylogeny, biogeography and conservation genetics. *Journal of Mammalogy* 88:840-849.

- Special Feature Article
- Cover Article

Arbogast, BS, SV Drovetski, RL Curry, P Boag, P Grant, R Grant, G Seutin and DJ Anderson. 2006. Origin and diversification of Galápagos mockingbirds. *Evolution* 60:370-382.

- Cover article for *Evolution*
- Editor's Choice, *Science* 312:21 (April 7, 2006)

Blois, JL*^{2,3}, and BS Arbogast. 2006. Conservation genetics of the Sonoma Tree Vole (*Arborimus pomo*) based on mitochondrial and AFLP markers. *Journal of Mammalogy* 87:950-960.

Arbogast, BS. 2006. The geography of life. Book Review of *Biogeography*, 3rd ed., by M Lomolino, B Riddle, and J Brown. *Trends in Ecology and Evolution* 21:14-15

Arbogast, BS, JP Dumbacher and, SJ Steppan. 2006. Evaluation of scientific information regarding the Preble's meadow jumping mouse. A Scientific Report prepared by Sustainable Ecosystems Institute for the US Fish and Wildlife Service. 82 pp.

- Featured in *Nature* 446:250-253; *Linnaeus* at 300 (March 15, 2007)

Arbogast, BS, RA Browne, PD Weigl, and GJ Kenagy. 2005. Conservation genetics of endangered flying squirrels from the Appalachian mountains of eastern North America. *Animal Conservation* 8:123-133.

Zheng X, BS Arbogast and GJ Kenagy. 2003. Historical demography and genetic structure of sister species: deer mice (*Peromyscus spp.*) in the North American temperate rainforest. *Molecular Ecology* 12:711-724.

Arbogast BS, SV Edwards, J Wakeley, P Beerli, and JB Slowinski. 2002. Estimating divergence times from molecular data on phylogenetic and population genetic timescales. *Annual Review of Ecology and Systematics* 33:707-740.

Arbogast, BS, and GJ. Kenagy. 2001. Comparative phylogeography as an integrative approach to historical biogeography. *Journal of Biogeography* 28:819-825.

Arbogast, BS, RA Browne and PD Weigl. 2001. Evolutionary genetics and Pleistocene biogeography of North American tree squirrels (*Tamiasciurus*). *Journal of Mammalogy* 82:302-319.

Arbogast, BS. 2001. *Phylogeography*, by JC Avise. Book Review: *American Zoologist* 41:134-135.

Arbogast, BS. 1999. Mitochondrial DNA phylogeography of the New World flying squirrels (*Glaucomys*): implications for Pleistocene biogeography. *Journal of Mammalogy* 80:42-155.

Slowinski, JB, and BS Arbogast. 1999. Is there an inverse relationship between body size and the rate of molecular evolution? *Systematic Biology* 48:396-399.

Arbogast, BS, and JB Slowinski. 1998. Pleistocene speciation and the mitochondrial DNA clock. *Science* 282:1955.

MANUSCRIPTS IN PREPARATION

Rowan Hammer, L^{2,3}, and BS Arbogast. Conservation Genetics of the Threatened Cheat Mountain Salamander (*Plethodon nettingi*): A Comparative, Multi-Locus Approach.

Schumacher, KI^{2,3}, BS Arbogast, JL Sparks, JF Pagels, RJ Dyer, and BL Brown. Conservation genetics of the endangered northern flying squirrel (*Glaucomys sabrinus*) across the Appalachian Mountains.

Arbogast, BS, TW Knowles, AMC Hodge^{2,3}, K Curry-Lindahl², SF Burneo, and R Kays. Elevational patterns of medium and large mammal species diversity on Sumaco Volcano, Ecuador.

Arbogast, BS, KP Aplin, KN Armstrong, LM Ogawa^{2,3}, and A Taylor. Cryptic diversity in an iconic Australian marsupial: the greater glider, *Petauroides volans*.

Novillo-G, M.², and B.S. Arbogast. Use of visual, olfactory and acoustic cues by the orange nectar bat in foraging and flower choice.

Hanson, RL² and B.S. Arbogast. Community membership and dominance hierarchy in a highly diverse assemblage of Andean hummingbirds.

Callahan, CM^{*2}, NJ Kerhoulas^{*2,3}, and B.S. Arbogast. Molecular Systematics and Population Genetics of Whale Lice Living on Gray-Whale Islands.

SELECTED SCIENTIFIC REPORTS/ SPECIES STATUS REVIEWS

Arbogast, BS, TW Knowles, SF Burneo, and R Kays. 2017. Summary of Fieldwork Documenting the Biodiversity of Medium-Large Mammals in Sumaco Napo-Galeras National Park, January-April 2017. Report to the Ministry of the Environment of Ecuador (in Spanish). May, 2017.

Rowan, L.^{2,3}, and B.S. Arbogast. Conservation Genetics of the Threatened Cheat Mountain Salamander (*Plethodon nettingi*): A Comparative, Multi-Locus Approach. Final Report to the West Virginia Department of Natural Resources. June, 2016.

Arbogast, BS, K Curry-Lindahl², TW Knowles, and SF Burneo. 2013. Summary of camera-trap survey of Sumaco-Napo Galeras, National Park, Ecuador. Report to the Ministerio del Ambiente de Ecuador.

Garner, BA^{2,3}, BS Arbogast, and M van Tuienen. 2012. Conservation genetics of an endemic and threatened species of West Virginia snail: the flat-spined three-toothed land snail, *Triodopsis platysayoides*. Final Report to West Virginia Dept. of Natural Resources.

Arbogast, BS, and K Schumacher^{2,3}. 2012. Conservation Genetics of the Northern Flying Squirrel (*Glaucomys sabrinus fuscus*) in West Virginia. Final Report to WV Dept. of Natural Resources.

Arbogast, BS, K Curry-Lindahl², TW Knowles, and SF Burneo. 2012. Summary of camera-trap survey of Sumaco-Napo Galeras, National Park, Ecuador. Report to Sumaco National Park.

Webster, WD, BS Arbogast, MK Clark, L Gatens, MC Kalcounis-Rueppell, C McGrath, and Rabon. 2010. Reevaluation of Status Listings for Jeopardized Mammals in North Carolina. Report of the Scientific Council on Mammals. North Carolina Natural Heritage Program/ Natural Resources Commission.

Arbogast, BS. 2010. External Review for the U.S. Fish and Wildlife Service of "An Account of the taxonomy of North American wolves from current morphological and genetic analyses," by Chambers, SM, SR Fain, B Fazio and M Amaral.

Arbogast, BS, and WD Webster. 2010. Conservation Status Report for the eastern spotted skunk (*Spilogale putorius*) in North Carolina. North Carolina Wildlife Resources Commission.

Arbogast, BS, and WD Webster. 2010. Conservation Status Report for the southeastern fox squirrel (*Sciurus niger*) in North Carolina. North Carolina Wildlife Resources Commission.

POPULAR PUBLICATIONS

Arbogast, BS. Human population and the future of biodiversity. *Ecology Global Network*. October 29, 2011. Available online at: <http://www.ecology.com/2011/10/29/human-population-future-diversity/>

RECENT AND PENDING GRANT SUPPORT

2017-2019 Arbogast, B. S. (Principle). Assessing Geographic Patterns of Genetic Variation and Gene Flow in North Carolina Populations of the Gopher Frog (*Rana capito*). NC Wildlife Resources Commission. State, \$41,182. Pending (sub: March, 2017).

2017-2019 Akers, N.², and B.S. Arbogast (Co-Principle). Assessing Geographic Patterns of Genetic Variation and Gene Flow in North Carolina Populations of the Gopher Frog (*Rana capito*). North Carolina Aquarium Conservation Grant. State, \$8,700.

- 2014-2017 Knowles, TW (Principal), J Steinmetz (Co-PI), P Zwiers (Co-PI), BS Arbogast (Co-P.I.). Collaborative Proposal-Planning for the Future: Developing a Five Year Plan for Wildsumaco Biological Station, National Science Foundation-Improvement in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories (FSML). \$24,700.
- 2013-2016 Arbogast, BS. Conservation Genetics of the Cheat Mountain Salamander. West Virginia Department of Natural Resources. \$34,800.
- 2013-2014 Arbogast, BS and TW Knowles. Documenting the Mammalian Biodiversity of Sumaco National Park, Ecuador. Riverbanks Zoo Conservation Support Fund. \$7,890.
- 2010-2012 Arbogast, BS and M van Tuinen. Conservation genetics of an endemic and threatened species of West Virginia snail: the flat-spired three-toothed land snail, *Triodopsis platysayoides*. West Virginia Department of Natural Resources. \$32,610.
- 2010-2011 Arbogast, BS. Cracking the Gliding Code: Applying modern genomic approaches to identify new species, understand phenotypic variation, and unravel the great mystery of how gliding mammals are "built". UNCW Faculty Min-grant Program. \$9,300.
- 2010-2012 Arbogast, BS and AMC Hodge^{2,3}. Use of Stable Isotope Analysis to Elucidate Differences in Prey Selection by Red Wolves and Coyotes. Red Wolf Recovery Program, U.S. Fish and Wildlife Service. \$5,000.
- 2009-2011 Arbogast, BS. Conservation Genetics of the northern flying squirrel and Allegheny woodrat. West Virginia Department of Natural Resources. \$30,500.
- 2009-2011 Arbogast, BS. Conservation Genetics of the northern flying squirrel (*Glaucomys sabrinus*) in North Carolina and Virginia. NC Wildlife Resources Commission. \$4,750.
- 2010 Arbogast, BS and K Armstrong. Cryptic and undocumented diversity in the mammals of Australasia: Symposium Proposal for the 2011 joint meetings of the American and Australian Mammal Societies, Portland, OR. \$4,300.
- 2009 Arbogast, BS. Conservation of Rainforest Mammals in the Tropical Andes of Ecuador: a Scientific and Educational Approach. UNCW Charles M. Cahill Award. \$3,000.
- 2005-2008 Systematics and Evolutionary Ecology of New and Old World Avian Sister Radiations [Aves: Mimidae and Sturnidae]. NSF, Systematic Biology. \$145,816. PI: IJ Lovette, Cornell University. I was one of 9 Senior Personnel on this project
- 2006 Arbogast, BS. Genetic and Bioacoustic Studies of Mesoamerican Flying Squirrels. HSU Research Scholarship and Creative Activities Grant. \$3,500.
- 2005 Arbogast, BS. Comparative molecular evolution of whale ectoparasites. CSUPERB Faculty Research Grant. \$10,000.
- 2004-2007 NSF REU Site in Ecological and Evolutionary Research at Humboldt State University. NSF REU. \$255,390. PI's Sean Craig and Matt Johnson, Humboldt State University. I was a "Senior Personnel" member/faculty mentor on this grant.
- 2004 Arbogast, BS. Origin and Diversification of Galápagos mockingbirds. HSU Foundation Grant. \$1,100.
- 2004 Arbogast, BS. Whales as Islands: Biogeography and Co-evolution of Whales and Their Ectoparasites. HSU Research and Creative Activities Grant. \$4,300.
- 2003 Arbogast, BS. Developing a Web-Based Searchable Database for the HSU Mammal Collection. HSU Foundation Small Grant Competition. \$1,200.

- 2002 Arbogast, BS. The Effects of Habitat Fragmentation on the Demographic and Genetic Structure of a Temperate Rainforest Endemic, the Sonoma Red Tree Vole (*Arborimus pomus*). HSU Research Scholarship and Creative Activities Grant. \$5,000.

SELECTED AWARDS & HONORS

- 2013-present Research Associate, Museum of Comparative Zoology, Harvard University
- 2016 Featured Symposium Speaker. 23rd Annual Meetings of the Wildlife Society
- 2013 University of North Carolina Wilmington Grant Writing Incentive Program Award. Cracking the Gliding Code: Applying modern genomic approaches to unravel the mystery of how gliding mammals are “built.”
- 2011 Featured Symposium Speaker, Joint Meetings of the American Society of Mammalogists and the Australian Mammal Society, Portland, OR. Cryptic speciation in an iconic Australian marsupial, the greater glider (*Petauroides volans*)
- 2011 Global Citizenship Course Development Award, UNCW-International Programs
- 2006 Featured Symposium Speaker, 2006 Meetings of the American Society of Mammalogists, Amherst, MA. Evolutionary and biogeographic history of the New World flying squirrels.
- 2004 President McCrone Promising Faculty Scholar Award. Humboldt State University
- 1998 American Society of Mammalogists. First Runner-Up for the Albert R. and Alma Shadle Fellowship in Mammalogy (highest award given by ASM)
- 1998 American Museum of Natural History, Frank M. Chapman Award. Phylogeography of the Galápagos mockingbirds: a test of the prevailing-wind hypothesis of dispersal
- 1998 American Museum of Natural History, Theodore Roosevelt Award. The evolution of boreal mammal communities in North America: a comparative phylogeographic approach
- 1997 American Society of Mammalogists, Grant-in-aid of Research. The evolution of boreal mammal communities in North America: a comparative phylogeographic approach
- 1997 American Society of Mammalogists, Elizabeth Horner Award. Outstanding Graduate Student Research Proposal
- 1997 Wake Forest University Department of Biology, Graduate Student of the Year
- 1996 National Sigma Xi Competition. Phylogeography of the Galápagos mockingbirds
- 1996 Marine Biological Lab, Woodshole, MA. Workshop on Molecular Evolution Scholarship
- 1995 American Society of Mammalogists, Grant-in-aid of Research. Mitochondrial DNA variation and biogeography of the New World flying squirrels (*Glaucomys*) (1995).
- 1993 National Sigma Xi Competition. Mitochondrial DNA variation and biogeography of the New World flying squirrels (*Glaucomys*) (1993)
- 1992 Wake Forest University, Howard Hughes Undergraduate Travel Grant. Field-course in mainland Ecuador and the Galápagos Islands
- 1992 Derieux Award Winner (best student paper), North Carolina Academy of Science
- 1991 Wake Forest University, Howard Hughes Undergraduate Research Fellowship

SCIENTIFIC PRESENTATIONS (2005-present)

T.W. Knowles, B.S. Arbogast, A-M.C. Hodge^{2,3}, K. Curry-Lindahl², S.F. Burneo, and R. Kays. Elevational patterns of co-existence and replacement in medium-large species of terrestrial mammals on Sumaco Volcano, Ecuador. 12th International Mammalogical Congress, Perth, Australia, July, 2017.

Invited Speaker, UNCW Darwin Day Symposium. Evolutionary genetics reveal a new species of North American flying squirrel. Wilmington, NC, February 7, 2017.

Invited Seminar, Museum of Comparative Zoology, Harvard University. Using camera traps to investigate elevational patterns of biodiversity in medium-large mammals of Sumaco Volcano, Ecuador. Cambridge, MA, October 7, 2016.

Invited Speaker, S.V. Edward's Laboratory Research Group. Cryptic speciation in North American flying squirrels and the Australian greater glider. Museum of Comparative Zoology, Harvard University. Cambridge, MA, October 7, 2016.

Featured Symposium Speaker, 23rd Annual Meetings of the Wildlife Society. Arbogast, BS (speaker), T.W. Knowles, A-M. C. Hodge^{2,3}, K. Curry-Lindahl², S. F. Burneo, and R. Kays. Elevational Patterns of Co-Existence and Replacement in Medium-Large Species of Terrestrial Mammals on Sumaco Volcano, Ecuador. Meetings of The Wildlife Society, Raleigh, NC, Oct., 2016.

Invited Speaker, West Virginia Department of Natural Resources. Conservation genetics of the Cheat Mountain Salamander. Elkins, WV, July, 2016.

Hanson, RL² and BS Arbogast. Community Membership and Territoriality in a Highly Diverse Assemblage of Andean Hummingbirds. Meetings of The Wildlife Society. Raleigh, NC, Oct., 2016.

Novillo, M² and BS Arbogast. Nectar bats reliance on visual, olfactory, and acoustic cues in flower choice. University of North Carolina Wilmington. 95th Annual Meeting of the American Society of Mammalogists. June 12-16, 2015, Jacksonville, Florida.

Knowles, TW, BS Arbogast, AMC Hodge^{2,3}, and EN Vanderhoff. Mammalogy at Wildsumaco Biological Station: The first five years. 95th Annual Meeting of the American Society of Mammalogists. June 12-16, 2015, Jacksonville, Florida.

Arbogast, BS, KI Schumacher^{2,3}, A Bidlack, JA Cook, GJ Kenagy. Analysis of Nuclear and Mitochondrial DNA Reveals Cryptic Speciation in North American Flying Squirrels (*Glaucomys*). Meetings of the Society for the Study of Evolution, Raleigh, NC, June 2014.

Invited Seminar. Arbogast, BS. Department of Biology, Wake Forest University. Volcano at the edge of two worlds: Mammalian Biodiversity of Sumaco Volcano, an unstudied peak at the Amazonian-Andean Junction in eastern Ecuador. September, 2013.

Invited Seminar. Arbogast, BS. Department of Biology, The College of William and Mary. Volcano at the edge of two worlds: Mammalian Biodiversity of Sumaco Volcano, an unstudied peak at the Amazonian-Andean Junction in eastern Ecuador. October, 2013.

Curry-Lindahl, K², BS Arbogast, TW Knowles, and SF Burneo. Using camera trap surveys to address terrestrial mammal biodiversity and conservation in Sumaco National Park, Ecuador. 93rd Annual Meetings of the American Society of Mammalogists, Philadelphia, PA. June, 2013.

Arbogast, BS, KI Schumacher^{2,3}, A Bidlack, J Cook, and GJ Kenagy. Analysis of nuclear and mitochondrial DNA reveals cryptic speciation in North American flying squirrels (*Glaucomys*). 93rd Annual Meetings of the American Society of Mammalogists, Philadelphia, PA. June, 2013.

Hodge, AMC^{2,3} and BS Arbogast. Biogeographic patterns, life-history trends and conservation status of wild canids. 93rd Annual Meetings of the American Society of Mammalogists, Philadelphia, PA. June, 2013.

Kenagy, GJ, AS Chavez, JR Whorley, and BS Arbogast. Three squirrel tales: varying mitochondrial and nuclear DNA signals reflect different phylogeographic and taxonomic scenarios. 93rd Annual Meetings of the American Society of Mammalogists, Philadelphia, PA. June, 2013.

AS Chavez, BS Arbogast, SP Maher, and GJ Kenagy. Diversification and gene flow in island and mainland *Tamiasciurus* spp. – unraveling the mystery of Vancouver Island's squirrels. 93rd Annual Meetings of the American Society of Mammalogists, Philadelphia, PA. June, 2013.

Schumacher, KI^{2,3}, BS Arbogast, JL Sparks, JF Pagels, RJ Dyer, BL Brown. Conservation genetics of the endangered northern flying squirrel (*Glaucomys sabrinus*) across the Appalachian Mountains. First Joint Congress on Evolutionary Biology. Ottawa, Ontario. July, 2012.

Invited Seminar. Arbogast, B. Humboldt State University, Department of Biological Sciences, Arcata, CA. Cryptic diversity in an iconic Australian marsupial: the Greater Glider, *Petauroides volans*. Feb., 2012.

Invited Seminar. Arbogast, B. Humboldt State University, Wildlife Department, Arcata, CA. Volcano at the edge of two worlds: Mammalian Biodiversity of Sumaco Volcano, an isolated and unstudied peak at the Amazonian-Andean Junction in eastern Ecuador. Feb., 2012.

Featured Symposium Speaker. Arbogast, BS (speaker), K Aplin, K Armstrong, L Ogawa^{2,3}, and A Taylor. Cryptic diversity in an iconic Australian marsupial: the Greater Glider, *Petauroides volans*. 91st Annual Meeting of the American Society of Mammalogists, Portland St. University, Portland, OR. June, 2011.

Hodge, AMC^{2,3}, BS Arbogast, TW Knowles, and EN Vanderhoff. Interspecific spatial overlap and other factors affecting camera-trap success for the margay (*Leopardus wiedii*). 91st Annual Meetings of the American Society of Mammalogists. Portland, Oregon. June, 2011.

Schumacher, KI^{2,3}, BS Arbogast, JL Sparks, JF Pagels, RJ Dyer, BL Brown. Genetic evidence for a new subspecies of the endangered northern flying squirrel (*Glaucomys sabrinus*) in southwestern Virginia: implications for taxonomy and conservation. 91st Annual Meetings of the American Society of Mammalogists. Portland, Oregon. June, 2011.

Invited Seminar. Arbogast, BS. The Field Museum of Natural History, Chicago, IL. Cryptic Diversity and Speciation in Gliding Mammals. April, 2011.

Invited seminar. Arbogast, BS. College of Natural Resources, University of Nevada, Reno. The Conservation Challenges of Documenting Cryptic and Elusive Species: Examples from Gliding Mammals and Tropical Andean Carnivores. October, 2010.

Vanderhoff, EN, AMC Hodge, BS Arbogast, JR Burger, JD Camper, and TW Knowles. The margay (*Leopardus wiedii*) as a flagship species for conservation in the foothills of the Andes. Association of Southeastern Biologists, Asheville, North Carolina. April, 2010.

Hodge, AMC^{2,3}, BS Arbogast, EN Vanderhoff, J. Camper, JR Burger, and TW Knowles. Inventory of a mid-elevation assemblage of mammals in Ecuador's eastern Tropical Andes hotspot. Society for Integrative and Comparative Biology, Seattle, WA. January, 2010.

Invited speaker. Arbogast, BS. Adaptive Radiation in the Galapagos and Beyond. UNCW Evolution Learning Community Symposium "Darwin and the Origin of Species: A Twenty-First Century Perspective." UNC Wilmington. Wilmington, NC. November, 2009.

Knowles, TW, BS Arbogast, EN Vanderhoff, JD Camper, JR Burger and L Soetens. 2009. Mammal inventory of a new wildlife sanctuary in Ecuador's tropical Andes hotspot. 89th Annual Meeting of the American Society of Mammalogists, University of Alaska, Fairbanks, AK. June, 2009.

Callahan, CM^{2*} and BS Arbogast. Molecular Systematics and Historical Demography of Gray Whale Lice: What Can They Tell Us About Gray Whales? 88th Annual Meeting of the American Society of Mammalogists, Brookings, South Dakota. June, 2008.

Kerhoulas, NK^{2,3*} and BS Arbogast. Molecular Systematics and Biogeography of Mesoamerican Flying Squirrels. 88th Annual Meeting of the American Society of Mammalogists, Brookings, South Dakota. June, 2008.

Cardona, MA^{1*}, and BS Arbogast. Phylogeography of Ringtails: A Comparison between populations from Texas and northern California. SACNAS (Society for Advancement of Chicanos/Latinos and Native Americans in Science) National Conference, University of Utah, Salt Lake City, Utah. 2008.

Arbogast, BS, SV Drovetski, RL Curry, PT Boag, G Seutin, PR Grant, BR Grant and DJ Anderson. The origin and diversification of Galápagos mockingbirds. North American Ornithological Congress, Veracruz, Mexico. 2006.

Featured Symposium Speaker. Arbogast, BS. Evolutionary and biogeographic history of the New World flying squirrels (*Glaucomys*). Invited symposium presentation in the northern flying squirrel: a biological portrait of a forest specialist in post-European North America. 86th Annual Meetings of the American Society of Mammalogists, Amherst, MA. June, 2006.

Callahan, CM^{1*} and BS Arbogast. Phylogeography of whale lice living on gray whale islands. 86th Annual Meetings of the American Society of Mammalogists, Amherst, MA. June, 2006.

Callahan, CM^{1*}, BS Arbogast, PD Goley, JW Demastes. Biogeography of Whale Lice (Amphipoda: Cyamidae) Living on Gray Whale Islands. 16th Biennial Conference on the Biology of Marine Mammals, San Diego, CA. January, 2005.

Blois, JL^{2,3*} and BS Arbogast. Patterns of genetic variation within an endemic arboreal vole, *Arborimus pomo*, in northern California. Meetings of the International Biogeography Society, Shepherdstown, West Virginia. January, 2005.

Blois, JL^{2,3*} and BS Arbogast. A multilocus assessment of the genetic structure and diversity within an endemic, arboreal vole, *Arborimus pomo*, in northern California. 7th Annual Bay Area Conservation Biology Symposium, Stanford University. 2005.

Arbogast, BS, SV Drovetski, RL Curry, PT Boag, G Seutin, PR Grant, BR Grant and DJ Anderson. Origin and diversification of Galápagos mockingbirds. Meetings of the Society for the Study of Evolution, University of Alaska, Fairbanks, AK. June, 2005.

STUDENT MENTORSHIP

GRADUATE STUDENTS- MAJOR ADVISOR:

N Akers	Conservation Genetics of North Carolina gopher frogs (MS, UNCW, <i>in progress</i>)
R Hanson	Community Membership and Territoriality in a Highly Diverse Assemblage of Andean Hummingbirds (MS, UNCW, 2017)
M Novillo	Flower choice in a nectivorous bat at Sumaco Volcano, EC (MS, UNCW, 2016)
L Rowan-Hammer	Conservation genetics of the Cheat Mountain Salamander (MS, UNCW, 2016)
K Curry-Lindahl	Species diversity and elevational structuring of medium-large mammals in the cloud forest of Sumaco Volcano, Ecuador (MS, UNCW, 2013)
AMC Hodge	Ecological interactions among Andean forest carnivores (MS, UNCW, 2012)
KI Schumacher	Conservation genetics of the northern flying squirrel (MS, UNCW, 2012)
C Callahan*	Systematics and biogeography of whale lice (MS, Humboldt St., 2008)
N Kerhoulas*	Molecular Systematics of Mesoamerican Flying Squirrels (MS, Humboldt St. 2008)
J Blois*	Conservation Genetics of the Sonoma Tree Vole (MS, Humboldt St., 2005)

GRADUATE STUDENTS- CO-ADVISOR

L Ogawa	Conservation Genetics of the Eared-Grebe. (MS, UNCW, 2010)
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GRADUATE STUDENTS- COMMITTEE MEMBER (2008-PRESENT)

S Barco	Abundance, health status and sources of mortality for loggerhead sea turtles in Chesapeake Bay and the surrounding ocean waters of Virginia (PhD, UNCW, <i>in progress</i>)
JM Rodriguez Baron	By-catch rates, post-release mortality and population genetics of the East Pacific leatherback sea turtle (PhD, UNCW, <i>in progress</i>)
D Craney	Fluctuating Asymmetry and Cranial Variability in the Red Wolf (<i>Canis rufus</i>) Before and After a Historic Bottleneck (MS, UNCW, <i>in progress</i>)
S Nelson	A Study of Episodic-Like Memory in Rodents (MS, UNCW-Psychology)
C Torres	Systematics and morphological evolution in flamingos (MS, UNCW, 2014)
S Chavez	Assessment of exclusion devices on reducing by-catch of Diamondback terrapins in southeastern North Carolina (MS, UNCW, 2013)
J Pinson	Phylogeography of Appalachian ferns (MS, UNCW, 2013)
JE Williams	Species richness of bats (Chiroptera) in western South Carolina (MS, UNCW, 2013)
A Millis	Seasonal patterns of reproduction in male evening bats (MS, UNCW, 2013)
L Jarvis	Sperm preference and hybridization in blue mussels, <i>Mytilus</i> spp. (MS, UNCW, 2012)
K Freeman	Behavior of Townsend's Big-eared Bat (MS, Humboldt State, 2012)
B McClean	Stable isotope analysis of enamel in fossil and modern mammals (MS, UNCW, 2011)
JP Kennedy	Bat Activity across a vertical gradient of an old-growth redwood forest (MS, HSU 2011)
S Hutchinson	Phylogeography of <i>Cryptotis parva</i> (MS, UNCW, 2010)
S Schmitt	Genetic and morphological variation in the Udoteaceae (MS, UNCW, 2010)

GRADUATE STUDENTS- COMMITTEE MEMBER (2001-2008):

Member of 17 graduate student thesis committees at Humboldt State University

UNDERGRADUATE HONORS-PRIMARY MENTOR (UNCW 2008-PRESENT)

I Fincham	Initial study of bioluminescent insects at the Wildsumaco Wildlife Sanctuary, EC (2015). M
Taig-Johnston	Mammal diversity in managed and unmanaged longleaf pine forests (2014)
K Dodds	Genetic variation in the Allegheny woodrat (2012)
S Chavez	Comparative phylogeography of Great Basin Mammals (2012)
A Taylor-Smith	Assessing urban stream quality (2011)
C Goldchain	Comparative feeding morphology in marine carnivores (2011)
B Manly	Conservation genetics of the black-capped petrel. (2010)

UNDERGRADUATE HONORS- COMMITTEE MEMBER (UNCW 2008-PRESENT)

W Fezner	Stable Isotope Analysis of foraging behavior in Galapagos birds (2016)
M Yeager	Herpetological survey of the longleaf pine forest on the UNCW campus (2012)
E Probst	Egg size and development rates in American lobsters (<i>Homarus americanus</i>): relationship to female size (2010)
A Tomerdahl	Blood biochemistry of loggerhead sea turtles (<i>Caretta caretta</i>) entangled in longline fishing gear in the western Mediterranean (2010)
B Reuhland	Reconstruction of the Evolutionary History of Parrots (Aves: Psittaciformes) from retroelement insertion events (2010)

UNDERGRADUATE PROJECTS SUPERVISED AT HUMBOLDT STATE UNIVERSITY (2001-2008)

M. Cardona	Mitochondrial DNA phylogeography of the ringtail cat (<i>Bassariscus astutus</i>)
J. Hutchinson	Microsatellite analysis of a hybrid zone between distinct mitochondrial lineages of the northern flying squirrel, <i>Glaucomys sabrinus</i> .
L Avalos, L Holme	Genetic analysis of mammals of the sky islands of the Great Basin.
E Britz	Analysis of DNA variation of Hubb's beaked whale from museum specimens.
C Callahan	Analysis of genetic variation in northern flying squirrels from the Sierra Nevada.
L Kentfield	Using DNA data to assess natal beaches of sea turtles in the HSU Vertebrate Museum's Herpetology Collection.
J Morris, J Brownlee	Rearticulation of the skeleton of a green sea turtle.
J Smith, L Kentfield	Rearticulation of the skeleton of a mountain lion.
C Christman, N. Hall	Rearticulation of the skeleton of an elephant seal.
J Wu, A Young	Directed study in museum specimen preparation.
J Bryant, D Cook	Small mammal surveys of Humboldt Co., CA.
T McGaffey.	Comparisons of head ornamentations in Cetariodactyla.
J Eberle, J Tonda, C Callahan	Rearticulating the skeleton of Hubb's Beaked whale.