Chris A. Hamilton
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Department of Entomology, Plant Pathology & Nematology
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SUMMARY

PhD: 2015; Publications: 33 (2 *in press*; 1 *in review*); Google Scholar (h-index: 20, i10-index: 22, citations: 1615); New species: 16; Grants: >$2,700,000.

PROFESSIONAL POSITIONS

– Assistant Professor, University of Idaho, Department of Entomology, Plant Pathology, & Nematology. coPI of the Arthropod Molecular Systematics Lab. Affiliate faculty member in American Indian Studies (Department of Sociology and Anthropology). Affiliate faculty member in the Bioinformatics and Computational Biology Program (BCB).
2019 – present

– President for the Systematics, Evolution, & Biodiversity (SysEB) section of the Entomological Society of America.

– NSF Postdoctoral Fellow, "Broadening Participation of Native Americans into Collections-Based Research: Testing Hypotheses on the Hawkmoth-Bat Evolutionary Arms Race"
Florida Museum of Natural History, University of Florida, Gainesville, Florida
June 2016 – 2018
Advisors – Dr. Akito Y. Kawahara & Dr. Charles Cobb

– Postdoctoral Research Associate, Florida Museum of Natural History, University of Florida, Gainesville, Florida
August 2015 – June 2016
Advisor – Dr. Akito Y. Kawahara

– Freelance reportage photojournalist based in Dallas, Texas
2000 – 2006
Clients: National Geographic, TIME, Newsweek, People, FORTUNE, Southern Living, Texas Monthly, (French) VSD, (German) Focus & GEO, and others.

EDUCATION

– Ph.D. Evolutionary Biology, Auburn University, Auburn, Alabama
Fall 2011 – Summer 2015
**transferred with major advisor*
Advisor – Dr. Jason E. Bond

– Ph.D. Evolutionary Biology, East Carolina University, Greenville, North Carolina
Fall 2009 – Spring 2011*
Advisor – Dr. Jason E. Bond

– M.S. Biology, The University of Texas at Arlington, Arlington, Texas
Spring 2006 – Spring 2009
Advisor – Dr. Daniel R. Formanowicz

– B.A. Photojournalism, Western Kentucky University, Bowling Green, Kentucky
**transferred*; *widely regarded as the top photojournalism school in the United States*
Spring 1998 – Fall 1999

– The University of Kansas, Lawrence, Kansas
Fall 1994 – Fall 1997*

RESEARCH GRANTS

Submitted

NSF DRK12: Cultivating Relationships: Partnering Teachers, Tribes, and Landscapes for Sustaining STEM Education. coPI. Amount = $2,999,953 (4 years).

Funded

2022

NSF DEB: CAREER: Integrating Western science and Traditional Ecological Knowledge (TEK) to understand *Aphonopelma* diversity across the Madrean 'sky islands' and educate K-12 tribal students. Amount = $1,016,312 (5 years).

2021

University of Idaho IMCI Data Access Grant. Genome Sequencing for "Investigating the outbreak potential of a Pacific Northwest coniferous forest pest – the Pandora Pine Moth. PI. Amount = $4,745 (1 year).

USDA NIFA-AFRI: Investigating the shifting distribution and outbreak potential of a Pacific Northwest coniferous forest pest – the Pandora Pine Moth. Amount = $245,330 (2 years *starting 2022).

2017

– National Science Foundation (NSF) – DEB: Phylogenetic Systematics. "Living Fossils: Integrating Phylogenomics and Comparative Morphology to Assemble the Scorpion Tree of Life. (*Senior Personnel). PI - Lorenzo Prendini. Amount = $808,499 (3 years).
**could not be a coPI due to my PRFB status*

2016

– National Science Foundation (NSF) – Postdoctoral Research Fellowships in Biology (PRFB). "Broadening Participation of Native Americans into Collections-Based Research: Testing Hypotheses on the Hawkmoth-Bat Evolutionary Arms Race". Amount = $207,000 (3 years). PI - Chris Hamilton; Sponsoring Scientists - Drs. Akito Y. Kawahara & Charles Cobb.

– Florida Museum of Natural History & University of Florida Department of Natural History Postdoctoral Professional Development grant. Advisor - Dr. Akito Y. Kawahara. Amount = $1,000.

2015

– Smithsonian Peter Buck Postdoctoral Fellowship (NMNH). Advisor – Dr. Jonathan Coddington. Amount = $104,000 (2 years; $96,000 salary, $8,000 research). *declined

– Smithsonian Biogenomics/Global Genome Initiative (NMNH) – Anchored Enrichment phylogeny of spiders based on diverse genome quality tissue sampling. PI - Jonathan

Coddington, CoPI's - Chris Hamilton & Jason Bond. Amount = $20,000.

2013 to 2015

– National Science Foundation (NSF) – Doctoral Dissertation Improvement Grant (DDIG). Species delimitation and the evolution of dwarfism in the North American tarantula genus *Aphonopelma*. DEB1311494. PI's Jason Bond & Chris Hamilton. Amount = $19,360

2010

– American Museum of Natural History (AMNH) – Theodore Roosevelt Memorial Grant. Deciphering systematic relationships among three Western North American tarantula sister species in the *Aphonopelma "eutylenum* group". Amount = $1,500

2009

– American Arachnological Society (AAS) – The Vincent Roth Fund for Systematic Research. Determining the phylogeographic dynamics of the edge relationships between *Aphonopelma hentzi* (Girard) and its neighbors along the Colorado River Basin (Araneae, Mygalomorphae, Theraphosidae). Amount = $360

PUBLICATIONS (Google Scholar)

in review

– Li X, Hamilton CA, Markee A, Ballesteros L, Rougerie R, Kitching IJ, Kawahara AY. Diversification with the rise of the Andes: Historical biogeography of *Xylophanes*, the most taxonomically diverse hawkmoth genus. **Proceedings of the Royal Society – Biological Sciences**.

in press

– Stevens P, Anthony-Stevens V, Hedden-Nicely D, Hamilton CA. Tribal Nation Building and the Role of Faculty: Paying the Debt on Indigenous Wellbeing in Higher Education. ***Journal of American Indian Education***.

– Hamilton CA, Winiger N, Rubin JJ, Breinholt J, Rougerie R, Kitching IJ, Barber JR, Kawahara AY. Hidden phylogenomic signal helps elucidate arsenurine silkmoth phylogeny and the evolution of body size and wing shape trade-offs. ***Systematic Biology***.

Published

2022

– Bond JE, Godwin RL, Colby JD, Newton LG, Zahnle XJ, Agnarsson I, Hamilton CA, Kuntner M. An assessment of the state of spider taxonomy over the last decade and the insights it provides regarding the taxonomic crisis. ***Diversity***. 14(1): 1-15.

2021

– Aiello BR., Bin Sikandar U, Minoguchi H, Bhinderwala B, Hamilton CA, Kawahara AY, Sponberg S. The evolution of two distinct strategies of moth flight. ***Journal of the Royal Society Interface***. 18: 20210632; 1-10.

– Turk E, Bond J, Cheng RC, Candek K, Hamilton CA, Kralj-Fiser, Kuntner M. A Natural Colonization of Asia: Phylogenomic and Biogeographic History of Coin Spiders (Araneae: Nephilidae: Herennia). ***Diversity***. 13(11): 1-14.

– Mtui D, Silvestre Bringas K, Ciaccio E, Leblanc L, Okick R, Bwenge D, Hamilton CA. Phylogenetic relationships, distribution, and abundance of *Charaxes mtuiae* Collins Congdon

and Bampton, 2017 and its host plant in the Udzungwa mountain forest in southern Tanzania. ***Metamorphosis***. 32: 60-66.

– Aiello BR, Tan, M, Bin Sikandar U, Alvey, AJ, Bhinderwala, B, Kimball KC, Barber, JR, Hamilton CA, Kawahara AY, Sponberg S. Adaptive shifts underlie the divergence in wing morphology in bombycoid moths. ***Proceedings of the Royal Society – Biological Sciences***. 288: 20210677; 1-10.

– Hamilton, CA, Shockley, FW, Simmons, R, Smith, A, Ware, J, Zaspel, JM. Letter to the Editor: The Future for a Prominent Taxonomy. ***Insect Systematics and Diversity***. 5(1): 2; 1-2.

2020

– Longhorn, SJ & Hamilton CA. 2020. A molecular approach to the phylogeny of Theraphosidae and their kin. *In*: New World Tarantulas: taxonomy and evolutionary biology of Theraphosidae. Springer. Pgs 25-75.

– Bond JE, Hamilton CA, Godwin RL, Ledford JM, Starrett J. 2020. Phylogeny, Evolution and Biogeography of the North American Trapdoor Spider Family Euctenizidae (Araneae: Mygalomorphae) and the Discovery of a New "Endangered Living Fossil" Along California's Central Coast. ***Insect Systematics and Diversity***. 4(5): 2; 1-14.

– Opatova V, Hamilton CA, Hedin M, Montes de Oca L, Král J, Haddad CR, Bond JE. 2020. Phylogenetic systematics and classification of the spider infraorder Mygalomorphae using genomic scale data. ***Systematic Biology***. 69(4): 671-707.

2019

– Timmermans MJTN, Daghmoumi, SM, Glass D, Hamilton CA, Kawahara AY, Kitching IJ. 2019. Phylogeny of the hawkmoth tribe Ambulycini: mitogenomes from museum specimens resolve major relationships. ***Insect Systematics and Diversity***. 3(6): 12; 1-8.

– Hamilton CA, St Laurent RA, Dexter, K, Kitching IJ, Breinholt J, Zwick A, Timmermans M, Barber JR, Kawahara AY. 2019. Phylogenomics resolves major relationships and reveals significant diversification rate shifts in the evolution of silk moths and relatives. ***BMC Evolutionary Biology***. 19(1): 1-13.

– Kuntner M, Hamilton CA, Cheng R-C, Gregorič M, Lupše N, Lemmon EM, Lemmon AR, Agnarsson I, Coddington JA, Bond JE. 2019. Golden orbweavers ignore biological rules: Phylogenomic and comparative analyses unravel a complex evolution of sexual size dimorphism. ***Systematic Biology***. 68(4): 555-572.

– Coddington JA, Agnarsson I, Hamilton CA, Bond JE. 2019. Spiders did not repeatedly gain, but repeatedly lost, foraging webs. ***PeerJ***. 7: (e6703).

2018

– St Laurent RA, Hamilton CA, Kawahara AY. 2018. Museum specimens provide phylogenomic data to resolve relationships of sack-bearer moths (Mimallonidae). ***Systematic Entomology***. 43(4): 729-761.

– Rubin J*, Hamilton CA*, Kawahara AY, Barber JR. 2018. The evolution of anti-bat sensory illusions in moths. ***Science Advances***. 4(7): eaar7428 *co-first authors

– Chamberland L, McHugh A, Kechejian S, Binford G, Bond J, Coddington J, Dolman G, Hamilton C, Harvey M, Kuntner M, Agnarsson I. 2018. From Gondwana to GAARlandia: Evolutionary history and biogeography of ogre-faced spiders (*Deinopis*). ***Journal of Biogeography***. 45(11): 2442-2457.

– Godwin RL, Opatova V, Garrison NL, Hamilton CA, Bond JE. 2018. Phylogeny of a cosmopolitan family of morphologically conserved trapdoor spiders (Mygalomorphae, Ctenizidae) using Anchored Hybrid Enrichment, with a description of the new family, Halonoproctidae. ***Molecular Phylogenetics & Evolution***. 126: 303-313.

– Kitching IJ, Rougerie R, Zwick A, Hamilton CA, St Laurent RA, Ballesteros Mejia L, Kawahara AY. 2018. A global checklist of the Bombycoidea (Insecta: Lepidoptera). ***Biodiversity Data Journal***. 6: e22236.

– Kawahara AY, Plotkin D, Hamilton CA, Gough H, St Laurent R, Owens H, Homziak, NT, Barber JR. 2018. Diel behavior in moths and butterflies: A synthesis of data illuminates the evolution of temporal activity. ***Organisms Diversity & Evolution***. 18 (1): 13-27.

2017

– Maddison WP, Evans SC, Hamilton CA, Bond JE, Lemmon AR, Lemmon EM. 2017. A genome-wide phylogeny of jumping spiders (Araneae: Salticidae), using anchored hybrid enrichment. ***ZooKeys***. 695: 89-101.

– Turner SP, Longhorn SJ, Hamilton CA, Gabriel R, Pérez-Miles F, Vogler AP. 2017. Re-evaluating conservation priorities of New World tarantulas in a molecular framework indicates non-monophyly of the genera *Aphonopelma* and *Brachypelma*. ***Systematics and Biodiversity***.

– Hamilton CA. 2017. Invited Book Review "Tarantulas: Breeding Experience & Wildlife" by Fréderic Cléton, Yannick Sigwalt, and Jean-Michel Verdez. Frankfurt am Main (Germany): Edition Chimaira. ***The Quarterly Review of Biology***. 92 (1): 111-112.

2016

– Hamilton CA, Lemmon AR, Lemmon EM, Bond JE. 2016. Expanding anchored hybrid enrichment to resolve both deep and shallow relationships within the spider Tree of Life. ***BMC Evolutionary Biology***. 16:212.

– Cho S, Epstein SW, Mitter K, Hamilton CA, Plotkin D, Mitter C, Kawahara AY. 2016. Preserving and vouchering butterflies and moths for large-scale museum-based molecular research. ***PeerJ***. 4:e2160.

– Garrison NL, Rodriguez J, Agnarsson I, Coddington JA, Griswold CE, Hamilton CA, Hedin M, Kocot KM, Ledford JM, Bond JE. 2016. Spider phylogenomics: untangling the Spider Tree of Life. ***PeerJ***. 4:e1719.

– *Hamilton CA, Hendrixson BE, Bond JE. 2016. Taxonomic revision of the tarantula genus *Aphonopelma* Pocock, 1901 (Araneae, Mygalomorphae, Theraphosidae) within the United States. ***ZooKeys***. 560: 1-340.
**Altmetric score of 984 – this quantifies the amount of popular attention an article has received. #3 highest-scoring output from ZooKeys and in the top 5% of all research outputs scored by Altmetric.*

2015

– Graham MR, Hendrixson BE, Hamilton CA, Bond JE. 2015. Miocene extensional tectonics explain ancient patterns of diversification among turret-building tarantulas (*Aphonopelma mojave* group) in the Mojave and Sonoran deserts. ***Journal of Biogeography***. 42(6): 1052-1065.

2014

– Bond JE, Garrison NL, Hamilton CA, Godwin RL, Hedin M, Agnarsson I. 2014. Phylogenomics resolves a spider backbone phylogeny and rejects a prevailing paradigm for orb web evolution. ***Current Biology***. 24: 1765-1771.

– Hamilton CA, Hendrixson BE, Brewer MS, Bond JE. 2014. An evaluation of sampling effects on multiple DNA barcoding methods leads to an integrative approach for delimiting species: A case study of the North American tarantula genus *Aphonopelma* (Araneae, Mygalomorphae, Theraphosidae). ***Molecular Phylogenetics & Evolution***. 71: 79-93.

2013

– Hendrixson BE, DeRussy BM, Hamilton CA, Bond JE. 2013. An exploration of species boundaries in turret-building tarantulas of the Mojave Desert (Araneae, Mygalomorphae, Theraphosidae, *Aphonopelma*). ***Molecular Phylogenetics & Evolution***. 66: 327-340.

2012

– Bond JE, Hendrixson BE, Hamilton CA, Hedin M. 2012. A reconsideration of the classification of the spider infraorder Mygalomorphae based on three nuclear genes and morphology (Arachnida: Araneae). ***PLoS ONE***. 7(6): e38753.

– Bond JE, Hamilton CA, Garrison NL, Ray CH. 2012. Phylogenetic reconsideration of *Myrmekiaphila* systematics with a description of the new trapdoor spider species *Myrmekiaphila tigris* (Araneae, Mygalomorphae, Cyrtaucheniidae, Euctenizinae) from Auburn, Alabama. ***ZooKeys***. 190: 95-109.

2011

– Hamilton CA, Formanowicz DR, Bond JE. 2011. Species delimitation and phylogeography of *Aphonopelma hentzi* (Araneae, Mygalomorphae, Theraphosidae): cryptic diversity in North American tarantulas. ***PLoS ONE***. 6(10): e26207.

RESEARCH PRESENTATIONS (* denotes students)

2021

– Hamilton CA. Understanding *Aphonopelma* diversity across the United States and Mexico. *The Mount Diablo Interpretive Association (virtual). August 18, 2021*. [talk]

– Hamilton CA. Understanding *Aphonopelma* diversity across the Madrean Pine-Oak Woodlands Hotspot by integrating Western science and Traditional Ecological Knowledge (TEK). *Evolution 2021, the annual meeting for The Society for the Study of Evolution (virtual). June 24, 2021.* [talk]

– Hamilton CA. Symposium "Using machine learning to understand the evolution of biodiversity". Evolution 2021, the annual meeting for The Society for the Study of Evolution (virtual). June 24, 2021. [organizer]

– *Silvestre Bringas K & Hamilton CA. Understanding the evolutionary history of the *Aphonopelma m*arxi species group across the Madrean Archipelago "Sky Islands"

biodiversity hotspot. *AAS American Arachnological Society annual meeting (virtual), June 28th, 2021*. [talk]

– *Ciaccio E & Hamilton CA. Cryptic Diversity and Biogeography: Preliminary results in a genus of a mygalomorph spider (Antrodiaetus, Antrodiaetidae) from the Pacific Northwest. AAS American Arachnological Society annual meeting (virtual), June 28th, 2021. [talk]

– Hamilton CA. Understanding *Aphonopelma* diversity across the Madrean Pine-Oak Woodlands Hotspot by integrating Western science and Traditional Ecological Knowledge (TEK). *UC Davis (virtual). April 21, 2021.* [talk]

– Hamilton CA. Understanding *Aphonopelma* diversity across the Madrean Pine-Oak Woodlands Hotspot by integrating Western science and Traditional Ecological Knowledge (TEK). *North Carolina State University (virtual). April 12, 2021.* [talk]

– Hamilton CA, Hendrixson BE. Understanding *Aphonopelma* diversity across the Madrean Pine-Oak Woodlands Hotspot. *AMNH (virtual). February 8, 2021*. [talk]

2020

– Hamilton CA & Hendrixson BE. Understanding *Aphonopelma* diversity across the Madrean Pine-Oak Woodlands Hotspot. *VI Congreso Latinoamericano de Aracnología. December 14-18* (Buenos Aires, Argentina (virtual). [invited speaker in the "¿Una o varias especies?, delimitación de especies en arañas como un ejercicio de taxonomía integradora." Symposium]

2019

– Hamilton CA. Arthropod systematics in the age of "big data" and machine learning. *XXI International Congress of Arachnology. February 10-15* (Canterbury, New Zealand). [invited speaker in the "Young Arachnologist" symposium]

2018

– Hamilton CA, Hendrixson BE, Bond JE. Integrative species delimitation and revision of a "taxonomic nightmare" spider genus using natural history collections and "big data". *2018 ESA, ESC, and ESBC Joint Annual Meeting, November 11-14* (Vancouver, BC, Canada). [invited presentation in the symposium "Species-Delimitation and Identification in the Age of Big Data and Artificial Intelligence: Molecular and Morphological Approaches."]

– Hamilton CA, Rubin J, Barber JR, Kawahara AY. Convergent evolution of anti-bat sensory illusions in silkmoths. *Evolution 2018, the Second Joint Conference on Evolutionary Biology, August 19th-23rd.* (Montpellier, France). [selected to present in the symposium "From development to function: what does drive morphological convergences?"]

– Hamilton CA. From root to tips: the use of genomic approaches to understand the evolution of arthropod diversity. University of Idaho (Moscow, ID). [Invited Seminar]

2017

– Hamilton CA, Rubin J, Barber JR, Kawahara AY. Bat predation drives convergent evolution of wild silk moth (Lepidoptera: Saturniidae) hindwing shape. *XXXVI Annual Meeting of the Willi Hennig Society* (St. Petersburg, FL). [invited symposium speaker]

– Hamilton CA, Keller N, Breinholt J, Barber JR, Rougerie R, Kawahara AY. The evolution of wing shape tradeoffs in the subfamily Arsenurinae (Lepidoptera, Bombycoidea,

Saturniidae)…and how their bat predators have played a significant role. *Evolution 2017, the annual meeting for The Society for the Study of Evolution* (Portland, Oregon). [talk]

– *Mahadai A, *McGiveron S, *Philoctete D, Hamilton CA. The evolution of wing shape across an evolutionary arms race. *Undergraduate Research Scholars, Research Week, The University of Florida*. [poster]

2016

– Hamilton CA. From root to tips: genomic approaches to resolving the arthropod Tree of Life. University of Pittsburgh (Pittsburgh, PA). [Invited Seminar]

– Hamilton CA. From so simple a beginning: understanding how evolution has shaped arthropod diversity. *FLMNH McGuire Center Seminar Series* (Gainesville, FL). [Invited Seminar]

– Hamilton CA. Using genomics to understand the evolution of *Aphonopelma*: miniaturization and other tales of North American tarantulas. *2016 Colorado Desert Natural History Research Symposium. Anza-Borrego Foundation* (Borrego Springs, CA). [Invited Seminar]

– Hamilton CA, Keller N, Breinholt J, Barber JR, Kawahara AY. Phylogenetic relationships, wing shape, and the evolution of tails across the Arsenurinae (Lepidoptera, Bombycoidea, Saturniidae). *Southern Lepidopterists' Society and Association for Tropical Lepidoptera 2016 Annual Meeting* (Gainesville, FL). [talk]

– Hamilton CA, Keller N, Breinholt J, Barber JR, Kawahara AY. Phylogenetic relationships, wing shape, and the evolution of tails across the Arsenurinae (Lepidoptera, Bombycoidea, Saturniidae). *XXV International Congress of Entomology* (Orlando, FL). [talk]

– Hamilton CA. Evolution of the Bombycoidea: the role bat predation has played on their diversification. *Bombycoidea Workshop 2016* (Ecuador). [talk]

– Hamilton CA, Hendrixson, BE, Bond JE. Phylogenomics and taxonomic revision of the tarantula genus *Aphonopelma* Pocock, 1901 (Araneae, Mygalomorphae, Theraphosidae) within the United States. *20th International Congress of Arachnology* (Colorado School of Mines, Golden, CO). [talk]

– Hamilton CA, Lemmon AR, Lemmon EM, Bond JE. Expanding Anchored Hybrid Enrichment to resolve both deep and shallow relationships within the Spider Tree of Life. *Evolution 2016, the annual meeting for The Society for the Study of Evolution* (University of Texas, Austin, TX). [talk]

– *Sewnath, N, Hamilton CA, Hill, GM, Kawahara, AY. Moth wing shape and size as a defense strategy against bats. *Undergraduate Research Scholars, Research Week, The University of Florida*. [poster] *winner Best Student Research Exhibit at the FLMNH (2017)

2014

– Hamilton CA, Lemmon AR, Lemmon EM, Bond JE. A new age for spider phylogenomics: expanding Anchored Hybrid Enrichment to resolve both deep and shallow relationships within spiders. *28th European Congress of Arachnology* (University of Torino, Torino, Italy). [talk]

2013

– Hamilton CA, Bond JE. An integrative approach to species boundaries - incorporation of differing DNA barcoding methods: a case study of the North American tarantula genus

Aphonopelma. *37th Annual Meeting of the American Arachnological Society* (East Tennessee State University, Johnson City, TN). [talk]

– Hamilton CA, Lemmon AR, Lemmon EM, Bond JE. Anchoring spiders into the world of phylogenomics: expanding anchored hybrid enrichment for species lacking reference genomes. *37th Annual Meeting of the American Arachnological Society* (East Tennessee State University, Johnson City, TN). [poster]

– Hamilton CA, Bond JE. An integrative approach to species boundaries - incorporation of differing DNA barcoding methods: a case study of the North American tarantula genus *Aphonopelma*. *Auburn University Graduate Scholars Forum*. [talk]

2012

– *Fredette K, Garrison N, Hamilton CA, Bond JE. Potential hybridization of two species of trapdoor spiders in the genus *Cyclocosmia*. *Auburn University REU project presentation*. [poster]

2011

– *Atkinson XJ, Hamilton CA, Bond JE. Phylogeography of the *Aphonopelma reversum* species complex (Araneae, Mygalomorphae, Theraphosidae): population fragmentation in an endemic California spider. *East Carolina University Research Week*. [poster]

2010

– Hamilton CA, Hendrixson BE, Bond JE. Testing the efficacy of DNA barcoding in the North American tarantula genus *Aphonopelma*. *Evolution 2010, the annual meeting for The Society for the Study of Evolution* (Portland State University, Portland, OR). [talk]

– Hamilton CA, Hendrixson BE, Bond JE. Testing the efficacy of DNA barcoding in the North American tarantula genus *Aphonopelma*. *34th Annual Meeting of the American Arachnological Society* (East Carolina University, Greenville, NC). [poster]

– "The *Aphonopelma* of North America: evolutionary relationships and historical biogeography". *2010 British Tarantula Society Annual Lectures* (Bristol, England). [Invited Seminar]

– Longhorn SJ, Turner S, Hamilton CA, Vogler A. Resolving the nomenclatural nightmare for tarantulas with molecular analyses. *XVIII International Congress of Arachnology* (Siedlce, Poland). [poster]

2009

– Hamilton CA, Formanowicz DR. Determining the phylogeographic dynamics of the edge relationships between *Aphonopelma hentzi* (Girard) and its neighbors along the Colorado River Basin (Araneae, Mygalomorphae, Theraphosidae). *33rd Annual Meeting of the American Arachnological Society* (Arkansas Tech University, Russellville, AR). [talk]

TEACHING EXPERIENCE

Areas of Specialization: Phylogenetics, Systematics, Taxonomy, Bioinformatics, Geometric Morphometrics, STEM outreach

Workshops

2017

– Phylogenomics/Bioinformatics workshop on preparing and using Anchored Hybrid Enrichment datasets (McGuire Center for Lepidoptera and Biodiversity, University of

Florida)
– Geometric Morphometrics workshop on using the R package 'Momocs' for shape analysis (McGuire Center for Lepidoptera and Biodiversity, University of Florida)

Classes

Spring 2019-present
BIOL 536 – Phylogenetics Reading Group; University of Idaho
– I participate in leading PuRGe, a class that is held once a week with undergraduates and graduate students from the University of Idaho and Washington State University. Class size = ~15-20.

Spring 2019
ENT 440/540 – Insect Identification; University of Idaho
– Class size = 20. Survey of approximately 200 major arthropod families; collecting and preservation techniques.

Spring 2018
ENY 6934 – Seminar in Arthropod Phylogenetic Systematics; University of Florida
– Class size = 12. The primary goal was for students to read and discuss key literature in the development and application of modern phylogenetic methods, in particular, those that have influenced arthropod systematics.

Fall 2015, 2016, 2017
ZOO 4926/ENY 4905 (lecture and labs) – Spider Biology; University of Florida
– Class size approximately 30. Presented lectures on the evolution of spider silk and webs, the other arachnid families, and assisted with teaching lab and assisting field work.

Spring 2012 & 2014
BIOL 1011 (lab) – A Survey of Life; Auburn University
– Class size approximately 40; 4 classes. The purpose of this laboratory was to emphasize the contrasting strategies that animals employ to meet their similar biological needs. The class was heavily human focused, a mini A&P for non-majors, then followed by how humans interact with the world around them, much like the other organisms that students come across on a daily basis.

Fall 2009
BIOL 1061 (lab) – Environmental Biology; East Carolina University
– Class size of 14; 1 class. The main objectives of this course were to expose students to the field of Biology, familiarize them with the scientific method, and get them to think about the living world and their impact on it, in particular, how humans share many ecological connections with the organisms around them. Most classes incorporated a field component, allowing the students to explore the natural areas around campus.

Spring 2006 – Spring 2009
BIOL 1442 (lab) – Structure & Function of Organisms; University of Texas at Arlington
– Class size approximately 30; 3 classes. The primary purpose of this laboratory was to teach basic scientific and laboratory skills necessary to conduct research and understand/interpret the results. By participating in a variety of quantitative exercises that focused on data collection, statistical analyses, and presentation of results, students began to understand the scientific method, how to search library and electronic databases for published papers, and

how to generate lab reports following accepted formats and standards for published research.

STUDENTS ADVISED

Graduate Students
PhD students: Erik Ciaccio, Karina Silvestre-Bringas
Serving on graduate committee of Sam McCauley, PhD, 2018-present, UI, advisor – Dave Tank

Undergraduate Students
2019-2020
– University of Idaho undergraduate Abbey Runge (Biology).

2015 to 2018
– University of Florida undergraduates Shaelyn McGiveron (Emerging Scholar recipient), Adena Mahadai (Emerging Scholar recipient; graduated, presently a medical student), Dominique Philoctete (University Scholar), Neeka Sewnath (University Scholar; graduated, presently a graduate student), and Simone Yen (University Scholar).

2012 to 2013
– Auburn University undergraduate Miranda Reich (Masters student at Auburn).

2012
– Summer REU student Kellie Fredette (Stetson University; Masters student in the Bond Lab at Auburn).

2009 to 2011
– East Carolina University undergraduate Xavier Atkinson (received MS at ECU).

HONORS, AWARDS, & WORKSHOPS

2019
– Elected Vice President-Elect, Systematics and Evolutionary Biology (SysEb) section, Entomological Society of America (ESA)
– Selected participant in the Evolutionary Quantitative Genetics workshop, Friday Harbor Labs (University of Washington)

2017
– Selected participant in Dan Rabosky's (University of Michigan) workshop on estimating diversification rates, Oregon State University

2016
– ICE 2016 travel award to participate in the ICE 2016 symposium "Insect effects on ecosystem services"
– Participant in Bombycoidea Workshop 2016, August 4-14, Wild Sumaco Biological Station, Ecuador

2014
– Auburn University Cellular and Molecular Biosciences Peaks of Excellence Research Fellowship

2013
– First Place Oral Presentation, Biological Sciences, Auburn University Research Week Graduate Symposium

– Selected participant in the Bodega Bay Applied Phylogenetics workshop
– Auburn University COSAM travel grant
– Auburn University Graduate School travel grant

2010 to 2015
– Chickasaw Nation Higher Education Grant for Doctoral Students

2010 to 2011
– UNC Campus Scholarship

2009
– American Arachnological Society travel grant

1999
– College Photographer of the Year, Pictures of the Year International competition (POYi)

PROFESSIONAL SERVICE

Proposal Reviewer – NSF DEB-Phylogenetic Systematics; SSB – Mini-ARTS; SysEb; (Germany) Deutsche Forschungsgemeinschaft (DFG) - Lebenswissenschaften 1: Molekulare und Organismische Biologie

Subject Editor – *ZooKeys*

Co-editor for a special issue of the *Journal of American Indian Education*

Ad hoc reviewer for: *American Entomologist*, *American Naturalist*, *Arachnology*, *Journal of Arachnology*, *African Invertebrates*, *Journal of Biogeography*, *Biodiversity Data Journal*, *Bionomina*, *Insect Conservation & Diversity*, *Invertebrate Systematics*, *Molecular Ecology*, *Molecular Phylogenetics & Evolution*, *Organisms, Diversity & Evolution*, *PeerJ*, *PLoS Currents - Tree of Life*, *PLoS ONE*, *Revista de Biología Tropical* (International Journal of Tropical Biology and Conservation), *Revista Columbiana de Entomología*, *Systematic Biology*, *Systematic Entomology*, *Subterranean Biology*, *ZooKeys*, *Zoologia*, *Zoologica Scripta*, *Zoological Journal of the Linnean Society*, *Zootaxa.*

POPULAR PRESS COVERAGE FOR RESEARCH

Radio/TV – BBC Radio 5 Live (UK), BBC Radio Scotland, NewsRadio KFBK 93.1 FM (Sacramento, CA), SkyNews (UK), The Rubber Room on Triple M (Australia), and the late night Comedy Central game show @midnight

Print/Internet – The Associated Press, BBC, CNN, Discovery, Gizmodo, IFL Science, Live Science, Mic.com, National Geographic, Newsweek, Science News, The Sacramento Bee, The Washington Post, Scientific American, among others.

Book – "The Lost Species: Great Expeditions in the Collections of Natural History Museums" by Christopher Kemp (2017, The University of Chicago Press Books). *Aphonopelma atomicum* got its very own chapter describing the story of how this species was originally collected and finally discovered (Chapter 18. It Came from Area 51: The Atomic Tarantula Spider).

OUTREACH

As a Native professor at the state of Idaho's land grant institution, I live and work in the aboriginal homeland of the Nimi'ipuu (Nez Perce), Schitsu'umsh (Coeur d'Alene), Kalispel,

Kootenai, Paiute, and Shoshone-Bannock peoples. As a member of the Chickasaw Nation of Oklahoma, I have a personal investment to engage and mentor fellow Native students. These Tribal Nations are sovereign, legal, and political entities with their own powers of self-governance and self-determination. Because of this, one of my main goals is to work with the tribes to provide opportunities for the next generation to access and develop the skills and knowledge they deem necessary for strengthening Tribal sovereignty and self-determination.

As an extension specialist, I am working to build a STEM outreach and education program with the tribal students of Idaho, a role that no other faculty member at the university holds. In addition to educating K-12 tribal students in biology-centered STEM activities, I feel that my role at UI is to also be a tribal liaison in the college and my department, as well as recruiting and working to retain Native students (both undergraduate and graduate) and engaging and growing the Native community on campus. The inclusion of underrepresented groups in biology is essential to enhancing scientific literacy in the United States and I am committed towards bringing Native ideas and representation across the campus, state, and nation.

My STEM outreach program seeks to use genetics and the powerful evolutionary story of how it has created the vast amounts of diversity we see around us, both in humans and the rest of Earth's biodiversity. The main focus of my new program is a genetics-based STEM outreach program to teach tribal elementary, middle, and high school students about genetics. I am currently building a genetics-based STEM outreach program to teach K-12 students about DNA, the genome, and how genes work. This program uses a LEGO DNA sequencer to teach kids about DNA, DNA sequencing, how DNA is put together to build genes, and how those genes produce phenotypes. Called Nannoppolo' Lab (our Chickasaw word for 'monster'), children use four colors of LEGO blocks to "build" stretches of DNA. These genes are then read (i.e., "sequenced") by the sequencer (made of robotics and Arduino coding) and an output tells the students the characters that make up their monster (e.g. number of eyes, number of legs, type of monster, size, temperament, etc.). The students then get to draw and color their monster on an "official" sheet that they can hang on their classroom wall and compare with other students.

REFERENCES

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