

Allison J. Shultz

Curriculum Vitae

Natural History Museum of Los Angeles County
Ornithology Department
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Los Angeles, CA 90007

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PROFESSIONAL APPOINTMENTS

- 2018 - Present **Natural History Museum of Los Angeles County**
Associate Curator of Ornithology
- 2019 – Present **University of Southern California**
Scholar-in-Residence
- 2020- Present **San Diego State University**
Adjunct Assistant Professor
- 2017 - 2018 **Harvard University**
Bioinformatics Scientist, Informatics Group
- 2017 **Harvard University**
Postdoctoral Fellow, Mentor: Scott Edwards
- 2011 – 2017 **Harvard University**
PhD Candidate, Mentor: Scott Edwards
- 2008 – 2011 **San Diego State University**
MS Candidate, Mentor: Kevin Burns
- 2007-2008 **Museum of Vertebrate Zoology**
Centennial Coordinator

EDUCATION

- PhD **Harvard University**
Organismic and Evolutionary Biology, May 2017
Advisor: Dr. Scott Edwards
Dissertation: Comparative and population genomics of host-pathogen co-evolution in birds
- MSc **San Diego State University**
Biology, emphasis in Evolutionary Biology, May 2011
Advisor: Dr. Kevin J. Burns
Thesis: Using an avian visual model to assess the evolution of sexual dichromatism in tanagers
- BA **University of California, Berkeley**
Integrative Biology, May 2007, Honors.
Honors Thesis Advisor: Dr. Rauri C.K. Bowie
Honors Thesis: A Ninety-three year study of the effects of moderate urbanization on an avian community

AWARDS, HONORS AND FELLOWSHIPS

2022	Ned K. Johnson Early Investigator Award for outstanding and promising work by a researcher early in their career in any field of ornithology
2020	North American Ornithological Conference Exceptional Volunteer Service Award for “exemplary and meritorious service in developing and administering the technical meeting architecture essential for the success of the first virtual conference”.
2019	American Ornithological Society Elective Member
2016	Harvard Graduate School in the Arts and Sciences Merit Fellowship
2016	Certificate of Distinction in Teaching for Teaching Fellows at Harvard University
2013	American Ornithologists’ Union Student Presentation Award
2013	American Ornithologists’ Union Travel Award
2008	National Science Foundation Graduate Research Fellowship
2008	San Diego State University Tuition Scholarship
2007	Joseph LeConte Award
	Awarded to one Integrative Biology graduate for outstanding work in Natural History
2003 – 2007	Alumni Scholarship Leadership Award
2004	Class of 1951 Briggs Alumni Scholar

GRANTS AND FUNDING HISTORY

2022	NSF RaMP: Understanding Nature and Los Angeles Biodiversity (UNLAB) through Museum Collections and Field-based Research Co-PI (\$2.983m)
2020	Getty Pacific Standard Time Grant Co-PI (\$110k)
2015	Sigma Delta Epsilon/Graduate Women in Science Fellowship (\$7,683)
2015	NSF Dissertation Improvement Grant (\$21,940)
2014	Putnam Expedition Grant (\$3,920)
2013	Frank M. Chapman Memorial Fund (\$2000)
2013	American Ornithologists’ Union Research Grant (\$2480)
2013	Rosemary Grant Graduate Student Research Award (\$2250)
2009	Los Angeles Audubon Society Schreiber Award (\$1500)
2009	American Ornithologists’ Union Research Grant (\$2125)

PROFESSIONAL SERVICE

2022 - present	Member , American Ornithological Society English Bird Names Ad-hoc Committee
2022 - present	Elected Council Member , American Ornithological Society
2020 - 2022	Co-chair , Content group, IDEA (Inclusion, Diversity, Equity, Access) working group, NHMLAC
2020 - present	Founder and Organizer , Underrepresented Genders in Museum Ornithology
2020 - 2022	Member , American Ornithological Society Scientific Program Subcommittee
2020 - 2021	Member , American Ornithological Society Accessibility Subcommittee
2019 - present	Member , American Ornithological Society Collections Committee
2018 - 2021	Member , American Ornithological Society Meeting Coordination Committee
2014 - 2018	Chair , Graduate Women in Science Technology Committee
2012 – 2017	Mentor , Harvard University Women in Science, Technology, Engineering and Mathematics
2010	Chair, Evolutionary Biology and Ecology Seminar Series Student Committee , San Diego State University
2010-2011	Assistant Event Captain , Science Olympiad, Ornithology test
2009	Mentor , Expanding Your Horizons in Science and Mathematics Conference
2007 - 2008	Senior Manager , University of California Marching Band
2007-2008	Public Programs Committee , Berkeley Natural History Museums, University of California
2006-2007	Member , Cal Performances Board of Trustees

PUBLICATIONS

- Submitted Mirchandani, C.D., Shultz, A.J., Thomas, G.W.C, Smith, S.J., Baylis, M., Arnold, B., Corbett-Detig, R., Enbody, E., and Sackton, T.B. Submitted. A Fast, Reproducible, High-Throughput Variant Calling Workflow for Evolutionary, Ecological, and Conservation Genomics. bioRxiv, June 26, 2023. <https://doi.org/10.1101/2023.06.22.546168>. In Review. MBE
- Juhn, M.S., Martinet, K.M., Boucher, F.C.; Shultz, A.J., Harmon, L.J.; Burns, K.J., Alfaro, M.E., A Wrapped Brownian Motion Model for the Evolution of Color, Systematic Biology
- Eliason, C., Maia, R., Marcondes, R., Eaton, M., Burns, K.J.; Shultz, A.J., Constraint and innovation in color evolution among species and among plumage patches in five avian radiations, Proceedings of the Royal Society B
- Accepted Scott, B.F., **Shultz, A.J.**, Burns, K.J., The impact of habitat and migration on plumage color in Cardinalidae. Accepted. Biological Journal of the Linnean Society
- 2023 McCoy, D. E., **A. J. Shultz**, J. E. Dall, J. A. Dionne, and S. Johnsen. 2023. The carotenoid redshift: Physical basis and implications for visual signaling. *Ecol. Evol.* 13:e10408.
- Richmond, J. Q., J. Kingston, B. A. I. Ewing, W. Bear, S. A. Hathaway, C. Lee, C. Swift, K. L. Preston, **A. J. Shultz**, B. E. Kus, K. Russel, P. Unitt, B. D. Hollingsworth, R. E. Espinoza, M. Wall, S. Tremor, K. Palenscar, and R. N. Fisher. 2023. Prioritizing the Risk and Management of Introduced Species in a Landscape with High Indigenous Biodiversity. *soca* 122:101–121. Southern California Academy of Sciences.
- Aguillon, S.M., **Shultz, A.J.**, 2023. Community-sourced sightings of atypical birds can be used to understand the evolution of plumage color and pattern. *Ornithology* ukad029, <https://doi.org/10.1093/ornithology/ukad029>
- Terrill, R.S. and **Shultz, A.J.**, 2023, Feather function and the evolution of birds. *Biol Rev.* <https://doi.org/10.1111/brv.12918>
- 2022 Mychajliw, A., Ellwood, E., Alagona, P., Anderson, R., Balisi, M., Biber, E., Brown, J., George, J., Hendy, A., Higgins, L, Hofman, C., Leger, A., Ordeñana, M., Pauly, G., Putman, B., Randall, J., Riley, S., **Shultz, A.J.** Stegner, M.; Wake, T., Lindsey, E. Accepted. Lessons for conservation from beneath the pavement. *Conservation Biology*
- Cooper, D.S., **Shultz, A.J.**, Sekerciglou, C., Blumstein, D., 2022. Community science data suggest the most common raptors (Accipitridae) in urban centers are smaller, habitat-generalist species. *Ibis.* <https://doi.org/10.1111/ibi.13047>
- 2021 Beltrán, D.F., **A.J. Shultz**, Parra, J. 2021 Speciation rates are positively correlated with the rate of plumage evolution in hummingbirds. *Evolution* 75(7): 1665-1680. <https://doi.org/10.1111/evo.14277>
- McCoy, D. E., **Shultz, A. J.**, Vidoudez, C., van der Heide, E., Dall, J. E., Trauger, S. A., & Haig, D. 2021. Microstructures amplify carotenoid plumage signals in tanagers. *Scientific Reports*, 11(1), 1–20. <https://doi.org/10.1038/s41598-021-88106-w>
- Bell, K. C., Adams, B. J., Brown, B. V., Ludt, W. B., Pauly, G. B., **Shultz, A. J.**, & Vendetti, J. E. 2021. Museums Are Critical Infrastructure for Studying Urban Biodiversity. *Bioscience: biab026.* <https://doi.org/10.1093/biosci/biab038>

- A.J. Shultz**, B.J. Adams, K.C. Bell, W.B. Ludt, G.B. Pauly, J.E. Vendetti. 2021. Natural history collections are critical and underutilized resources for contemporary and future studies of urban evolution. *Evolutionary Applications*. <https://doi.org/10.1111/eva.13045>
- 2020 Cooper, D. S., **Shultz, A. J.**, & Blumstein, D. T. (2020). Temporally Separated Data Sets Reveal Similar Traits of Birds Persisting in a United States Megacity. *Frontiers in Ecology and Evolution*, 8, 251. <https://doi.org/10.3389/fevo.2020.00251>
- Price-Waldman, R., **A. J. Shultz**, Burns, K.J. 2020. Speciation rates are correlated with changes in plumage color complexity in the largest family of songbirds. *Evolution* 74(6): 1155-1169.
- 2019 Näpflin, K., L. Becks, S. Bensch, V. A. Ellis, N. Hafer-Hahmann, K. C. Harding, S. K. Lindén, E. A. O'Connor, M. T. Olsen, J. Roved, T. B. Sackton, **A. J. Shultz**, V. Venkatakrisnan, E. Videvall, H. Westerdahl, J. C. Winternitz, and S. V. Edwards. 2019. Genomics of hosts-pathogen interactions: challenges and opportunities across ecological and spatiotemporal scales. *PeerJ* 7:e8013.
- Alfaro, M.E., Karan, E., Schwartz, S.T., **Shultz, A.J.**, 2019. The evolution of color pattern in butterflyfishes (Chaetodontidae). *Integrative and Comparative Biology* 59(3): 604-615.
- Shultz, A.J.** and Sackton, T.B. 2019. Immune genes are hotspots of shared positive selection across birds and mammals. *eLife* 8:e41815
- 2018 Drury, J.P., Tobias, J.A., Burns, K.J., Mason, N.A., **Shultz, A.J.**, Morlon, H. 2018. Contrasting impacts of competition on ecological and social trait evolution in songbirds. *PLoS Biology* 16 (1), e2003563
- 2017 Termigioni-Garcia, F., Jaramillo-Correa, J.P., Chable-Santos, J., Liu, M., **Shultz, A.J.**, Edwards, S.V., Escalante Pliego, P. 2017. Genomic footprints of adaptation in a cooperatively breeding tropical bird across a vegetation gradient. *Molecular Ecology* 26:4483-4496
- Burns, K.J.*, McGraw, K.J.*, **Shultz, A.J.***, Stoddard, M.C.*, and Thomas, D.B.*. 2017. Advanced Methods for Studying Pigments and Coloration using Avian Specimens. *in* M. S. Webster, ed. *Studies in Avian Biology: The Extended Specimen: Emerging Frontiers in Collections-based Ornithological Research*. CRC Press. *These authors contributed equally to this paper
- Shultz, A.J.** and Burns, K.J. 2017. The role of sexual and natural selection in shaping patterns of sexual dichromatism in the largest family of songbirds (Aves: Thraupidae). *Evolution* 71:1061-1074.
- Tigano, A., **Shultz, A.J.**, Edwards, S.V., Robertson, G.J., Friesen, V.L. 2017. Outlier analyses to test for local adaptation to breeding grounds in a migratory arctic seabird. *Ecology and Evolution*. Doi:10.1002/ece3.2819
- 2016 **Shultz, A.J.**, Baker, A.J., Hill, G.E., Nolan, P.M. and Edwards, S.V. 2016. SNPs across time and space: population genomic signatures of founder events and epizootics in the House Finch (*Haemorhous mexicanus*). *Ecology and Evolution*. doi:10.1002/ece3.2444
- 2015 Edwards, S.V., **Shultz, A.J.**, Campbell-Staton, S.C. 2015. Next-generation sequencing and the expanding domain of phylogeography. *Folia Zoologica* 3: 187-206
- Dierickx*, E.G. **Shultz*, A.J.**, Sato, F. Hiraoka, T. Edwards, S.V. 2015. Morphological and genomic comparisons of Hawaiian and Japanese black-footed albatrosses *Phoebastria nigripes* using double digest RADseq: implications for conservation. *Evolutionary Applications* 8: 662-678.
*These authors contributed equally to this paper

- 2014 Mason, N. A., **Shultz, A. J.**, and K. J. Burns. 2014. Elaborate visual and acoustic signals evolve independently in a large, phenotypically diverse radiation of songbirds. *Proceedings of the Royal Society B, Biological Sciences* 281: (1788) 20140967
- K.J. Burns, **A.J. Shultz**, P.O. Title, N.A. Mason, F.K. Barker, J. Klicka, S.M. Lanyon, I.J. Lovette. 2014. Phylogenetics and diversification of tanagers (Passeriformes:Thraupidae), the largest radiation of Neotropical songbirds. *Molecular Phylogenetics and Evolution* 75: 41-77
- 2013 **Shultz, A.J.** and Burns, K.J., 2013. Plumage evolution in relation to light environment in a novel clade of Neotropical tanagers. *Molecular Phylogenetics and Evolution* 66: 112-125
- 2012 Burns, K.J., and **A.J. Shultz**. 2012. Widespread cryptic dichromatism and ultraviolet reflectance in the largest radiation of Neotropical songbirds: implications of accounting for avian vision in the study of plumage evolution. *The Auk* 129(2): 211-221
- H.K. Snyder, R. Maia, L. D'Alba, **A.J. Shultz**, K.M.C. Rowe, K.C. Rowe, M.D. Shawkey. 2012. Iridescent colour production in hairs of blind golden moles (Chrysochloridae). *Biology Letters* 8(3) 393-396
- Shultz, A.J.**, M.W. Tingley, and R.C.K. Bowie. 2012. A century of avian community turnover in an urban green space in Northern California. *The Condor* 114(2): 258-267

INVITED PRESENTATIONS AND PUBLIC EVENTS

- 2023 Bruin Birding Club Pride Festival panelist, UCLA, Los Angeles, California
- 2022 San Fernando Valley Audubon Society, Los Angeles, California
- 2022 Santa Monica Bay Audubon Society, Santa Monica, California
- 2022 University of Florida, Biology Department, Gainesville, Florida
- 2022 Plenary Speaker, Congreso Colombiano de Ornitología, Popayán, Colombia
- 2022 University of New Mexico Museum Colloquium Series, Albuquerque, New Mexico
- 2022 Louisiana State University Museum of Natural Sciences Seminar, Baton Rouge, Louisiana
- 2021 University of Toronto, Scarborough Biosciences Seminar, Scarborough, Canada
- 2021 San Diego Field Ornithologists, San Diego, California
- 2021 American Museum of Natural History Comparative Biology Seminar, New York, New York
- 2020 Princeton University Ecology and Evolutionary Biology Department Seminar (Graduate Student Invited Speaker), Princeton, New Jersey
- 2020 Cornell University Ecology and Evolutionary Biology Department Seminar, Ithaca, New York
- 2020 California Academy of Sciences Genomics Social Hour, San Francisco, California
- 2020 Los Angeles Audubon Society Seminar, Los Angeles, California
- 2020 California State University Dominguez Hills Biology Department Seminar, Los Angeles, California
- 2020 California State University Los Angeles Biology Department Seminar, Los Angeles, California
- 2019 California State University San Bernardino Biology Department Colloquium, San Bernardino, California.
- 2019 Occidental College Biology Department Seminar Series. Pasadena, California.
- 2019 California State University Northridge Biology Department Colloquium, Northridge, California.
- 2019 Cal Poly Pomona Biology Department Seminar Series. Pomona, California.
- 2019 University of California, Riverside, Ecological, Evolutionary and Organismal Biology Seminar Series, Riverside, California.
- 2019 University of Southern California, Molecular and Computational Biology Seminar Series, Los Angeles, California.
- 2015 Nuttall Ornithology Club Meeting, Cambridge, Massachusetts.
- 2015 Menotomy Bird Club, Cambridge, Massachusetts.
- 2015 Stonehill College Biology Seminar Series, Easton, Massachusetts.
- 2014 Museum of Vertebrate Zoology Lunch Seminar, Berkeley, California.

- 2014 Lund University. Minisymposium in genomics and adaptation, Lund, Sweden.
 2014 Queens University Biology Graduate Research Day, Kingston, Ontario, Canada.
 2010 San Diego Field Ornithologists, San Diego, California
 2008 MVZ Centennial History Symposium, Berkeley, California.
 2007 Museum of Vertebrate Zoology Lunch Seminar, Berkeley, California.

CONFERENCE PRESENTATIONS

- 2023 Alderson, J., **Shultz, A.J.**, Brown III, G., Burns, K.J., Colorful Feathers and Colorful Skin: Correlated Trait Evolution Between Feathered and Non-feathered Regions in Tanagers, American Ornithology Society – Society for Canadian Ornithology, London, Ontario, Canada
- 2023 Salter, J., Higa, B., Mason, C., Bell, K., **Shultz, A.J.**, A quantitative test of Gloger's Rule and its underlying mechanisms in Northern Bobwhites (*Colinus virginianus*), American Ornithology Society – Society for Canadian Ornithology, London, Ontario, Canada
- 2023 Morrison, E.S., **Shultz, A.J.**, Round Table: Bird Name-a-thon: Categorizing bird names using crowdsourcing, American Ornithology Society – Society for Canadian Ornithology, London, Ontario, Canada
- 2022 Shultz, A.J., Terrill, R.A., Feathers are a valuable resource for studying avian evolution, ecology, and the environment. International Ornithological Congress, “Harnessing the power of natural history collections for modern ornithology” symposium (Co-organizer), Virtual
- 2022 Koedel, A.B., Gresham, A., Bloom, P., Saggese, M., **Shultz, A.J.**, Bonsioli-Alquati, A., Genetic signatures of selection for resistance to lead exposure in the Turkey Vulture (*Cathartes aura*) genome, American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico. *Student presenter
- 2022 Tsai, W.L.E., Medina, N., Romero, T., **Shultz, A.J.**, McCormack, J.E., Smith, T.B., Alfaro, M.E., Comparative evolution of visual system sensitivity and color diversity in birds. American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico. *Student presenter
- 2022 Price-Waldman, R.M., **Shultz, A.J.**, Stoddard, M.C., Microstructures alter the appearance of structurally colored and pigmented feathers in tanagers and other birds. American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico. *Student presenter
- 2022 Mason, N.M., **Shultz, A.J.**, Kirchman, J.J., Bates, J., Cicero, C., AOS Collections Committee. Towards a registry of North American ornithology collections. American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico. *Co-presented Poster
- 2022 **Shultz, A.J.**, Tayag, S., Community science is a bridge between researchers and the general public. Invited talk – Creative and integrative science communication in natural history symposium, American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico.
- 2022 **Shultz, A.J.**, Early Professional Award Plenary, “Flashy Feathers and Microscopic Microstructures: How and Why Birds are Colorful”, American Ornithology Society – Birds Caribbean, San Juan, Puerto Rico.
- 2020 **Shultz, A.J.**, Dall, J.E., McCoy, D.E., Burns, K.J. The evolution of plumage coloration and its underlying mechanisms in male and female tanagers. Invited talk – Studies of avian radiations in the 21st century Symposium. North American Ornithological Conference, Virtual.
- 2020 **Shultz, A.J.**, Adams, B.J., Bell, K.C., Ludt, W.B., Pauly, G.B., Vendetti, J.E. Natural history collections are critical and underutilized resources for contemporary and future studies of urban

- evolution. Invited talk – Leveraging museum collections to track avian population responses to anthropogenic change Symposium. North American Ornithological Conference, Virtual.
- 2020 Price-Waldman, R.M., Demery, A.J., Mason, N.A., **Shultz, A.J.**, Title, P.O., Burns, K.J. The relative importance of natural selection and sexual selection in speciation in the tanagers. Invited talk – Contemporary insights into evolutionary processes using large-scale comparative analyses of avian behavior Symposium. North American Ornithological Conference, Virtual. *Student presenter
- 2019 **Shultz, A.J.**, Pathogen-mediated genotypes to colorful phenotypes: integrating research across organizational levels to study biodiversity. Early Professional Symposium. American Ornithology Society, Anchorage, Alaska
- 2019 **Shultz, A.J.**, The Ornithology Collection of the Natural History Museum of Los Angeles County (LACM). American Ornithology Society, Anchorage, Alaska (poster)
- 2019 **Shultz, A.J.**, Arnold, B.A., Wuitchik, S., Sackton, T.B., The long and the short of it: linking genome-wide signatures of selection across evolutionary timescales in birds. American Ornithology Society, Anchorage, Alaska
- 2019 Price-Waldman, R.M., Demery, A.J.C., Mason, N.M, **Shultz, A.J.**, Burns, K.J., The relative roles of natural selection and sexual selection in speciation in the tanagers. American Ornithology Society, Anchorage, Alaska, *Student presenter
- 2019 Demery, A.J.C., Edwards, S.V., **Shultz, A.J.**, Population Genomics of Hawaiian House Finches (*Haemorrhous mexicanusi*): investigating genetic variation of an introduced population. American Ornithology Society, Anchorage, Alaska, *Student presenter
- 2018 **Shultz, A.J.**, Sackton, T.B. Immune genes are hotspots of convergent positive selection in birds. Population, Evolutionary and Quantitative Genetics, Madison, Wisconsin (poster)
- 2017 **Shultz, A.J.**, Zhang, Q., Backstrom, N., Baker, A.J., Hill, G., Nolan, P.M., Edwards, S.V. Demographic consequences of a novel pathogen in native and introduced populations of a songbird. Contagion Symposium, Radcliffe Institute, Cambridge, Massachusetts (poster)
- 2017 **Shultz, A.J.**, Yu, J., Sackton, T.B. Genomic signatures of pathogen-mediated selection across the bird tree of life. Evolution Conference, Portland, Oregon (poster)
- 2017 **Shultz, A.J.**, Yu, J., Sackton, T.B. Genomic signatures of pathogen-mediated selection across the bird tree of life. Host-pathogen co-evolution in the genomics area GoCAS workshop, Gothenburg, Sweden
- 2016 **Shultz, A.J.** Rapid evolution in response to a novel pathogen in the House Finch. Boston Evolutionary Genomics Supergroup Annual Retreat. Cambridge, MA
- 2016 **Shultz, A.J.** Yu, J., Sackton, T. Evolution of the innate immune system across the bird tree of life. North American Ornithological Congress, Washington D.C.
- 2014 **Shultz, A.J.**, Mason, N.A., Burns, K.J. The evolution of sexual dichromatism in tanagers: a mosaic of natural and sexual selection. Brazilian Ornithological Meeting of 2014, Rio de Janeiro, Brazil (*Invited speaker)
- 2015 **Shultz, A.J.**, Backstrom, N., Baker, A.J., Nolan, P.M., Hill, G., Edwards, S.V. Phylogeography and genomic signatures of pathogen-mediated selection using genome-wide diachronic comparisons in

- the House Finch (*Haemorhous mexicanus*). Joint meeting of the American Ornithologists' Union and Cooper Ornithological Society, Chicago, Illinois
- 2013 **Shultz, A.J.**, Backstrom, N., Baker, A.J., Nolan, P.M., Hill, G., Edwards, S.V. 2013. Signatures of pathogen-mediated selection using genome-wide diachronic comparisons in the House Finch (*Haemorhous mexicanus*). 2015. Ecological and Evolutionary Genomics, Gordon Research Conference, Biddeford, Maine (poster)
- 2013 **Shultz, A.J.**, Backstrom, N., Baker, A.J., Nolan, P.M., Hill, G., Edwards, S.V. 2013. Signatures of pathogen-mediated selection using genome-wide diachronic comparisons in the House Finch (*Haemorhous mexicanus*). 2014. "Infectious diseases as drivers of evolution: the challenges ahead", Conferences Jacques-Monod, Roscoff, France (poster)
- 2013 **Shultz, A.J.**, Backstrom, N., Baker, A.J., Nolan, P.M., Hill, G., Edwards, S.V. Phylogeography and genomic signatures of pathogen-mediated selection using genome-wide diachronic comparisons in the House Finch (*Haemorhous mexicanus*). Society for the Study of Evolution, Snowbird, Utah
- 2011 **Shultz, A.J.** and K.J. Burns. 2011. Male and female plumage evolution in the tanagers: a mosaic of natural and sexual selection. Society for the Study of Evolution, Norman, Oklahoma
- 2011 Mason, N.A., **A.J. Shultz** and K.J. Burns. 2011. Diversification rates and phenotypic evolution in the Neotropical seed-eaters (Genus *Sporophila*). Society for the Study of Evolution, Norman, Oklahoma
- 2010 **Shultz, A.J.** and K.J. Burns. 2010. Evolutionary patterns of male and female plumage in the tanagers. Society for the Study of Evolution, Portland, Oregon
- 2010 Mason, N.A., **A.J. Shultz** and K.J. Burns. 2010. Elucidating patterns of song evolution in a clade of lowland tanagers: The role of phylogenetic signal and plumage. Society for the Study of Evolution, Portland, Oregon
- 2010 **Shultz, A.J.** and K.J. Burns 2010. Different patterns of plumage evolution between sexes in a clade of lowland tanagers. American Ornithologists' Union, San Diego, California
- 2009 **Shultz, A.J.** and K.J. Burns. 2009. Sexual dichromatism in tanagers and cardinals: Evolution from an avian perspective. American Ornithologists' Union, Philadelphia, Pennsylvania
- 2007 **Shultz, A.J.**, and R.C.K. Bowie. 2007. A ninety-three year study of the effects of moderate urbanization on an avian community. American Ornithologists' Union, Laramie, Wyoming

TEACHING EXPERIENCE

Workshop Instructor (Developed and taught course)

- 2019 **Bioinformatics Nanocourse:** Introduction to R, Intermediate R, Data Visualization in R, *Harvard University*
- 2018 **Bioinformatics Nanocourse:** Introduction to R, Intermediate R, Data Visualization in R, Population Genetics in R, and Phylogenetics in R sessions, *Harvard University*
- 2017 **Informatics Workshop Series:** Introduction to R, Intermediate R, and Data Visualization in R workshop, *Harvard University*
- 2017 **3-day Workshop on Bioinformatics** in Iguazu, Argentina, (Co-instructor with Tim Sackton, Gustavo Bravo and Scott Edwards), *Society of Field Ornithologists*
- 2017 **Professional Development Series**, *Harvard University Department of Organismic and Evolutionary Biology* (Co-instructor with Glenna Clifton)

- 2010 **Comparative Analyses and Basics in R Workshop**, Evolutionary Biology graduate students and faculty, *San Diego State University*
- 2007 **IB 98/198: Insights into Vertebrate Evolutionary Research -- Historic and Present: An Investigative Classroom Endeavor**, *University of California, Berkeley*

Teaching Fellow

- Spring 2016 OEB 190, **Biology and Diversity of Birds**, *Harvard University*
- Spring 2014 LS1b, Genetics, **Genomics and Evolution**, *Harvard University*
- Fall 2012 OEB 10, **Diversity of Life**, *Harvard University*
- Spring 2009 BIOL 212, **Instructor for Human Anatomy Lab**, *San Diego State University*
- Fall 2008 BIOL 212, **Instructor for Human Anatomy Lab**, *San Diego State University*
- Spring 2010 **Field Teaching Assistant for Ornithology**, *San Diego State University*
- Spring 2009 **Field Teaching Assistant for Ornithology**, *San Diego State University*

Guest Lecturer

- Spring 2021 Ornithology, *University of California, Los Angeles*
- Spring 2021 Avian Field Biology, *Loyola Marymount University*
- Spring 2021 Evolution, *University of Southern California*
- Spring 2021 Avian Biology, *Occidental College*
- Fall 2020 Evolution, *University of Mississippi*
- Spring 2020 Ornithology, *San Diego State University*
- Spring 2020 Avian Field Biology, *Loyola Marymount University*
- Spring 2019 Dinosaur Phylogenetics and Systematics, *University of Southern California*
- Spring 2018 OEB 190, Biology and Diversity of Birds, *Harvard University*
- Fall 2017 OEB 275r, Phylogeography and phylogenetics in the era of genomics, *Harvard University*
- Fall 2016 Introduction to R seminar series: phylogenetic comparative methods, *Harvard University*
- Spring 2016 OEB 190, Biology and Diversity of Birds, *Harvard University*
- Spring 2013 OEB 275rb, Evolutionary Genomics and the Museum, *Harvard University*
- Fall 2012 OEB 190, Biology and Diversity of Birds, *Harvard University*
- Fall 2010 BIOL 524, Ornithology (developed lab on plumage coloration), *San Diego State University*
- Fall 2010 Graduate Seminar: Comparative Methods of Trait Evolution, *San Diego State University*

Select Public Outreach Lectures and Programs

- 2022 Specimens Podcast, hosted by Elle Kaye
- 2021 Society for the Study of Evolution “Decolonizing evolution: A conversation about how the English hegemony harms science and what to do about it” Panelist
- 2021 American Ornithological Society “Exploring careers outside academia” Workshop Panelist
- 2021 American Ornithological Society “Interacting with your invisible audience” Panel member
- 2021 Meet the Scientist Webinar
- 2021 Adventures in Nature Camp (Grades 3-5)
- 2021 Los Angeles Public Library virtual program
- 2020 Panelist for Vote for Climate, a panel of youth activists in Los Angeles
- 2020 Plumology – Ologies podcast hosted by Alie Ward
- 2020 Panelist for XPRIZE Tropical Thursdays: How do museum collections help us travel through time?
- 2020 Skype a Scientist (3 events)
- 2019 What’s so amazing about birds: The remarkable world of our flying friends, One Day University
- 2019 Guest on NPR’s Science Friday
- 2019 STEM Superstar for Project Science
- 2019 Panelist, Graduate Women in Scientist panel discussion on academic and academic-adjacent careers
- 2016 Investigating the Science of Avian Coloration through Observational Drawing, Co-instructor with Erica Beade, Harvard Museum of Natural History

- 2015 Adult Class, Biodiversity in the Avian World, Harvard Museum of Natural History
 2015 I Heart Science museum public museum festival, Harvard Museum of Natural History
 2015 Museum Volunteer Orientation, Harvard Museum of Natural History
 2014 Ursuline Academy A.P. Biology class, Harvard Museum of Natural History
 2014 Adult Class, Avian Adaptation in a Changing World, Harvard Museum of Natural History
 2012 Adult Class, Avian Evolution: Coloration in Bird Plumage, Harvard Museum of Natural History

Student/Postbacc/Postdoctoral Fellow Mentorship

- 2023 – present **Maria Castaño**, PhD thesis committee member, University of Rochester
 2023 – present **Eliza Kirsch**, PhD Co-advisor, University of Southern California (NSF GRFP recipient)
 2023 – present **Moses Aubrey**, Postbacc Mentor (UNLAB scholar)
 2023 – present **Olivia Sanderfoot**, Postdoctoral Co-mentor, University of California, Los Angeles
 2023 – present **Jackie Childers**, Postdoctoral Mentor (NSF PRFB recipient)
 2022 – present **Maeve Secor**, PhD Co-advisor, University of Southern California
 2021 – present **Jonah Alderson**, MS thesis committee member and co-advisor, San Diego State University
 2020 – present **Elizabeth Karan**, PhD thesis committee member, University of California Los Angeles
 2022 – 2023 **Sean Lyon**, MS thesis committee member, Cal State Los Angeles
 2021 – 2023 **Alexandria Koedel**, MS thesis committee member, Cal Poly Pomona
 2022 – 2023 **Jessie Salter**, Postdoctoral Mentor (NSF PRFB recipient)
 2020 – 2021 **Ben Scott**, MS thesis committee member, San Diego State University
 2019 – 2020 **Jacqueline Dall**, undergraduate intern (InternLA), Occidental College
 2018 – 2020 **Diego Fabian Beltran Segura**, MS thesis committee member, Universidad de Antioquia
 2017 **Amelia Demery**, co-advisor with Scott Edwards, Sally Casanova Summer Research Student Internship, Harvard University
 2015 - 2016 **Julia Yu**, co-advisor with Tim Sackton and Scott Edwards, Undergraduate Student, Harvard University
 2014 - 2015 **Elisa Dierickx**, co-advisor with Scott Edwards, Post-undergraduate Intern, Harvard University

FIELD EXPEDITIONS

- 2022 Two week expedition to Villa de Leyva, Colombia for tanager color research
 2016 Three weeks of House Finch targeted research in Massachusetts
 2014 Three week expedition to Washington, US to collect House Finches
 2014 Two week expedition to Arizona to collect House Finches
 2012 Four week expedition to northern and eastern Mongolia to collect bird specimens
 2006 – 2007 Grinnell Resurvey Project participant, collected bird specimens in and near Lassen Volcanic National Park, California

WORKSHOPS/COURSES ATTENDED

- 2015 **Harvard Business School Credential of Readiness (HBX CORE)**, Pass with high honors, Fall 2015
 2015 **Harvard miniMBA**, Introduction to business
 2013 **Summer Institute in Statistical Genetics**, University of Washington, Scholarship recipient for Population Genetics and Association Mapping, High-dimensional Omics Data, and Network and Pathway Analysis of Omics Data modules
 2012 **Sao Paulo School of Advanced Science – evolution**, FAPESP and USP sponsored.
 2010 **Comparative Methods and Macroevolution in R Summer Short Course**, NSF and NCEAS sponsored

PROFESSIONAL MEMBERSHIPS

American Ornithological Society

Wilson Ornithological Society
Society for the Study of Evolution
Graduate Women in Science