Allison Q. Byrne, PhD

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they/she

CURRENT POSITION

Oct. 2021 — Postdoctoral Scholar, **Resilience Institute Bridging Biological Training and Research (RIBBiTR)**.
University of California, Berkeley, CA
Department of Environmental Science, Policy & Management
Supervisor: Dr. Erica Bree Rosenblum

PROFESSIONAL PREPARATION & EDUCATION

2020 - 2021 — Postdoctoral Fellow, **Smithsonian Conservation Biology Institute**, Washington, D.C.
Supervisors: Dr. Brian Gratwicke, Dr. Carly Muletz Wolz, Dr. Roberto Ibáñez

2014 - 2020 — Ph.D. from the Department of Environmental Science, Policy & Management
University of California, Berkeley, CA
Advisor: Dr. Erica Bree Rosenblum
Affiliated Graduate Student at the Museum of Vertebrate Zoology

2008 - 2013 — B.S. in Environmental Science, Concentration: Ecology & Conservation
Drexel University, Philadelphia, PA
Graduated *summa cum laude* from the Pennoni Honors College
Cumulative GPA: 3.91

PUBLICATIONS

(google scholar link)

2023 — **Byrne, A.Q.**, Rothstein, A.P. (co-first authors), Smith, L., Kania, H., Knapp R.A., Boiano, D.M., Briggs, C.J., Backlin, A.R., Fisher, R.N., Rosenblum E.B. *Revisiting conservation units for the endangered mountain yellow-legged frog species complex (Rana muscosa, Rana sierrae) using multiple genomic methods*. Accepted at Conservation Genetics.

2023 — **Byrne, A.Q.**, *Reimagining the future of natural history museums with compassionate collection.* PLOS Biology. 21(5): e3002101.

2023 — Ghose, S., Yap, T., **Byrne, A.Q.**, Sulaeman, H., Rosenblum, E.B., Chan-Alvarado, A., Chaukulkar, S., Greenbaum, E., Koo, M.S., Kouete, M.T., Lutz, K., McAloose, D., Moyer, A.J., Parra, E., Portik, D.M., Rockney, H., Zink, A., Blackburn D.C., Vredenburg, V.T. *Continent-wide recent emergence of a global pathogen in African amphibians*. Frontiers in Conservation Science. 4:8.

2022 — **Byrne, A.Q.**, Waddle, A.W., Jaeger, J.R., Richards-Zawacki, C.L., Voyles, J., Rosenblum, E.B. *Host Species is Linked to Pathogen Genotype for the Amphibian Chytrid Fungus (Batrachochytrium dendrobatidis) in the USA.* PLOS ONE. 17(3), p.e0261047.

2022 — Basanta, M.D., Ávila-Akerberg, V.D., **Byrne, A.Q.**, Castellanos-Morales, G., González Martínez, T.M., Maldonado-López, Y., G., Rosenblum, E.B., Suazo, I., Parra-Olea, G., Rebollar, E.A. *The fungal pathogen Batrachochytrium salamandrivorans is not detected in wild and captive amphibians from Mexico*. PeerJ. 10:e14117.

2022 — Basanta, M.D., Rebollar, E.A., García-Castillo, M.G., Rosenblum, E.B., **Byrne, A.Q.,** Piovia-Scott, J., Parra-Olea, G. *Genetic variation of Batrachochytrium dendrobatidis is linked to skin bacterial diversity in the Pacific treefrog Hyliola regilla* (*hypochondriaca*). Environmental Microbiology, 24(1), 494-506.

2021 **Byrne, A.Q.**, Richards-Zawacki, C.L., Voyles, J., Bi, K., Ibañez, R., Rosenblum, E.B. *Whole exome sequencing identifies conservation units and the potential for genetic rescue in critically endangered Panamanian golden frogs.* Global Change Biology; 27(1), 50-70.

2021 Basanta, M.D., **Byrne, A.Q.**, Rosenblum, E.B., Piovia-Scott, J., Parra Olea, G. *Early presence of Batrachochytrium dendrobatidis in Mexico with a contemporary dominance of the global panzootic lineage.* Molecular Ecology; 30(2), 424-437.

2021 Rothstein, A.P., **Byrne A.Q.**, Knapp, R.A., Briggs, C.J., Voyles, J., Richards-Zawacki, C.L., Rosenblum, E.B. *Divergent regional evolutionary histories of a devastating global amphibian pathogen.* Proceedings of the Royal Society B; 288(1953), 20210782.

2021 Sheets, C.N., Schmidt, D.R., Hurtado, P.J., **Byrne, A.Q.**, Rosenblum, E.B., Richards-Zawacki, C.L., Voyles, J. *Thermal Performance Curves of Multiple Isolates of Batrachochytrium dendrobatidis, a Lethal Pathogen of Amphibians*. Frontiers in Veterinary Science, 8, p.648.

2020 Olivares-Miranda, M., Vredenburg, V.T., García-Sánchez, J.C., **Byrne, A.Q.**, Rosenblum, E.B., Rovito S.M. *Fungal infection, decline and persistence in the only obligate troglodytic Neotropical salamander.* PeerJ; 8:e9763

2020 Lambert, M.R., Womack, M.C., **Byrne, A.Q.**, Hernández-Gómez, O.H., Noss, C.F., Rothstein, A.R., Blackburn, D.C., Collins, J.P., Crump, M.L., Koo, M.S., Nanjappa, P., Rollins-Smith, L., Vredenburg, V.T., Rosenblum, E.B. *Comment on "Amphibian fungal panzootic causes catastrophic and ongoing loss of biodiversity".* Science; 367(6484).

2020 Hernández-Gómez, O.H., **Byrne, A.Q.**, Gunderson, A.R., Jenkinson, T.S., Noss, C.F., Rothstein, A.R., Womack, M.C., Rosenblum, E.B. *Invasive vegetation affects amphibian skin microbiota and body condition.* PeerJ; 8:e8549

2019 **Byrne, A.Q.**, *et al.* (28 additional co-authors), Erica Bree Rosenblum. *Cryptic diversity of a widespread global pathogen reveals expanded threats to amphibian conservation.* Proceedings of the National Academy of Sciences; 116(41), 20382-20387.

2018 **Byrne, A.Q.**, Poorten, T., Voyles, J., Willis, C.K.R., Rosenblum, E.B. *Opening the file drawer: Unexpected insights from a chytrid infection experiment.* PLOS ONE; 13(5): e0196851.

2018 Voyles, J., Woodhams, D.C., Saenz, V., **Byrne, A.Q.**, Perez, R., Rios-Sotelo, G., Ryan, M.J., Bletz, M., Sobell, F.A., McLetchie, S., Reinert, L., Rosenblum, E.B., Rollins-Smith, L.A., Ibáñez, R., Ray, J.M., Griffith, E.J., Ross, H., Richards-Zawacki, C.L. *Shifts in disease dynamics in a tropical amphibian assemblage are not due to pathogen attenuation.* Science; 359(6383).

2017 **Byrne, A.Q.**, Rothstein, A., Poorten, T. J., Erens J., Settles M. L., & Rosenblum, E. B. *Unlocking the story in the swab: A new genotyping assay for the amphibian chytrid fungus Batrachochytrium dendrobatidis.* Molecular Ecology Resources; 17(6), 1283-1292.

2016 **Byrne, A.Q.**, Voyles, J., Rios-Sotelo, G., & Rosenblum, E. B. *Insights from Genomics into Spatial and Temporal Variation in Batrachochytrium dendrobatidis.* Progress in Molecular Biology and Translational Science; 142, 269-290.

In Review

2023 Knapp, R.A., Wilber, M.Q., **Byrne, A.Q.**, Joseph, M.B., Smith, T.C., Rothstein, A.P., Grasso, R.L., Rosenblum, E.B. *Evolutionary rescue and reintroduction of resistant frogs allows recovery in the presence of a lethal fungal disease*. In Review at Proceedings of the National Academy of Sciences. Preprint available here: https://doi.org/10.1101/2023.05.22.541534

2023 Saenz, V., **Byrne, A.Q.**, Altman, K., Brannelly, L., Hammond, T., Ohmer, M., Rosenblum, E.B., Richards-Zawacki, C. *Understanding the landscape-level movement of an emerging wildlife pathogen*. In Review at Journal of Animal Ecology.

TEACHING, MENTORSHIP & OUTREACH

2023 Taught a workshop on amphibian pathogen genomics at the Resilience Institute Bridging Biological Training and Research (RIBBiTR) Training Workshop at La Selva Biological Station, Costa Rica. Voted "most educational instructor" by participants.

2022 Co-designed and taught Genetics of Amphibian Declines: A Course-based Undergraduate Research Experience (ESPM 139A) Fall semester at UC Berkeley

2022 Led a workshop on analyzing pathogen genetic data using reproducible workflows in Rstudio and Github at RIBBiTR team meeting, Pymatuning Field Station, University of Pittsburgh, PA

2022 Invited Guest Lecture for Landscape Ecology at Cal Poly Pomona

2019-2020 Mentor for Berkeley GiGS (Getting into Graduate School) Program

2019 GSI for ESPM50AC: Introduction to Culture & Natural Resource Management (*Led discussion section*)

2019 Volunteer Mentor for oSTEM national mentorship program

2019 Volunteer Student Mentor at the Joint Meeting of Ichthyologists and Herpetologists

2018-2020 Mentor for the Berkeley Connect program

2018 GSI for ESPM100ES: Methods in Environmental Science (*Mentored students writing senior thesis proposals, led workshops*)

2018 Guest Lecture in ESPM112: Microbial Ecology

2017 GSI for ESPM137: Landscape Ecology (*Led computer-based lab section*)

2016-2017 Volunteer for Bay Area Scientists in School outreach program

2016 Guest Lecture in ESPM98: *One Health for Action: Integrating Human, Animal, and Environmental Health*

2016-Present Mentored 9 undergraduate students in laboratory techniques related to DNA extraction, PCR, R coding, and genetic data analyses.
Madeline Moore, Madeline Gregory, Shreeya Garg, Christina Meyer, Sylvia Targ, Courtney Hendrickson, Sean O'Neil, Ismena Jameau, Alexandra Boren

PRESENTATIONS (*indicates invited seminar)

2023 *Identifying genomic signatures of rapid evolutionary change in mountain yellow-legged frogs (Rana muscosa/sierrae) recovering from disease.* Oral presentation given at the Evolution Conference. June 22.

2023 *Reimagining the future of natural history museums with compassionate collection.* Led a one-hour virtual discussion at the Digital Data in Biodiversity Research Conference. June 6.

2023 **Piecing together the amphibian pandemic.* Oral presentation given at the Museum of Vertebrate Zoology Seminar Series, UC Berkeley. February 1.

2022 *A snapshot of Batrachochytrium dendrobatidis (Bd) genetic diversity across the continental United States.* Oral presentation given virtually at the Global Amphibian and Reptile Disease conference. August 8.

2021 *Host Species is Linked to Pathogen Genotype for the Amphibian Chytrid Fungus (Batrachochytrium dendrobatidis)*
Oral presentation given virtually at the Joint Meeting of Ichthyologists and Herpetologists. July 22.
Oral presentation given virtually at the Amphibian Pathogens Annual Meeting. November 12.

2019 *Cryptic diversity of a widespread global pathogen reveals new threats for amphibian conservation.* Oral presentation given at the Joint Meeting of Ichthyologists and Herpetologists. July 26. Snowbird, UT.

2019 *The genetics of persistence in the Panamanian Golden Frog.* Oral presentation given at the Evolution Conference. June 22. Providence, R.I.

2019 **Surviving chytrid: Dynamics of a globalized amphibian pathogen and how some frogs are fighting back.* Oral presentation given for the Wildlife & Conservation Biology Seminar Series at UC Berkeley. April 12. Berkeley, CA

2018, 2019 *Using whole exome sequencing to reveal genetic mechanisms of persistence in the critically endangered Panamanian golden frogs*.
Oral presentation given at Ecology Society of America Conference. August 7, 2018. New Orleans, LA.
Oral presentation given at Museum of Vertebrate Zoology Research Symposium. January 17, 2019. Berkeley, CA

2017 *Unlocking the story in the swab: A new genotyping assay for the amphibian chytrid fungus*. Oral presentation given at Evolution Conference. June 25. Portland, OR.

2013 *Hitching a Ride: Did Herpetologists Introduce the Deadly Chytrid Fungus to Southern Mexico?* Oral presentation given as part of the Museum of Vertebrate Zoology Lunch Seminar Series. September 4. Berkeley, CA.

2013 *Morphological Variation along an Elevation Gradient in Two Amphibian Species from Bioko Island, Equatorial Guinea.* Poster presented at the Drexel University College of Arts & Sciences Research Day. April 9. Philadelphia, PA.

2012 *Distribution and Abundance of Frogs at Moka Wildlife Center, Bioko Island, Equatorial Guinea.* Poster presented at the Drexel University College of Arts & Sciences Research Day. April 3. Philadelphia, PA.

2009 *Vegetation Survey of Southeastern Pennsylvania Wetlands to Assess Habitat Quality.* Poster presented at the Drexel University College of Arts & Sciences Research Day. April 6. Philadelphia, PA.

GRANTS & AWARDS

2021 "Lightning Award" for most scientifically-exciting talk – Amphibian Pathogens Annual Meeting

2021 Revive and Restore Catalyst Science Fund: $211,000 awarded for postdoc stipend and research expenses at the Smithsonian Conservation Biology Institute

2020 Smithsonian Institution Postdoctoral Fellowship: $50,400 awarded for 1-year postdoctoral stipend

2019 Winner of Henri Seibert Competition for Best Student Presentation in Conservation – Joint Meeting of Ichthyologists and Herpetologists, Snowbird, UT

2019 Outstanding Graduate Student Instructor Award – UC Berkeley

2019 Best Student Presentation – Museum of Vertebrate Zoology Research Symposium

2018	Bob Lane and Sandy Purcell Graduate Support Fund (College of Natural Resources, UC Berkeley): Awarded for Research Expenses - $1500
2018	UC Berkeley MVZ Wake Fund: Awarded for Research Expenses - $1000
2017	Oliver Lyman Fund for Wildlife Research, ESPM Dept. UC Berkeley - $1500
2017	UC Berkeley MVZ Wilhelm Martens: Awarded for Research Expenses - $1500
2016	UC Berkeley MVZ Wake Fund: Awarded for Research Expenses - $2000
2015	National Science Foundation Graduate Research Fellowship - $102,000
2014	UC Berkeley ESPM Starter Grant: Awarded for Research Expenses - $1000
2012	Benjamin A. Gilman International Scholarship: Awarded for Study Abroad to Bioko Island, Equatorial Guinea – $4000
2012	Drexel University Study Abroad Scholarship: Awarded for Study Abroad to Bioko Island, Equatorial Guinea – $1000
2008 – 2013	A.J. Drexel Scholarship awarded by Drexel University – $14,500 per quarter

ACADEMIC SERVICE

2019	Served as graduate student representative for faculty search committee in ESPM department at UC Berkeley.
2019	Served on the graduate student admissions committee for ESPM department at UC Berkeley.
2017-2018	Reviewer for ESPM Starter Grant. Allocated $20,000 in research funds to first-year graduate students in ESPM by judging submitted proposals.
2017-Present	Reviewed manuscripts for Microbial Ecology, Animal Conservation, Conservation Genetics, Evolutionary Applications, PLOS ONE, Hydrobiologia, and Microbiology
2017-Present	Member of Amphibiaweb guiding committee

RELEVANT WORK EXPERIENCE

2016 – 2018	Lab Manager Rosenblum Lab, UC Berkeley, CA Inventoried, stocked, and organized molecular lab. Onboarded and trained new graduate and undergraduate students. Ensured compliance with environmental health & safety measures.
2013 – 2014	GIS Analyst Home Junction, Inc. San Diego, CA Digitized neighborhoods and school attendance areas in ArcGIS.
2013	VertNet Intern Museum of Vertebrate Zoology. UC Berkeley. Designed an independent research project using museum data to study the spread of Chytrid fungus in Central American amphibians.
2011 – 2012	Watershed Sciences Co-op Philadelphia Water Department. Philadelphia, PA Lead a team of two in collecting field data for various stream studies. Developed and implemented a stormwater basin inspection plan.
2010	Environmental Science Student Intern Federal Aviation Administration. William J. Hughes Technical Center, Egg Harbor City, NJ Completed a vegetation survey of the base's 5000+ acres using ArcPad. Designed a presentation on stormwater and pollution. Assisted various biologists with field work including bat, butterfly, and snake surveys.