Katherine Krynak

Curriculum Vitae

Case Western Reserve University
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Current Position

Postdoctoral Scholar, Department of Biology, Case Western Reserve University (CWRU)
Mentors: Ryan Martin (CWRU) and Patricia Dennis (Cleveland Metroparks and The Ohio State Cooperative)

Education

PhD. Biology, Case Western Reserve University, August 2015
B.S. Biology and Environmental Science Dual Major, University of Cincinnati, 1999

Fellowships and Research Grants

Fulbright Early Career Fellowship: Ecuador (2016-2017)
National Science Foundation Graduate Research Program Fellowship (2011-2014)
EPA STAR (2011; declined to accept NSF GRFP Fellowship)
Cleveland Metroparks Zoo "Cans for Conservation" (2011)

Publications

- **K. Krynak**, D. Burke and M. Benard (2016) Landscape and water characteristics correlate with immune defense trait differences across Blanchard's cricket frog (*Acris blanchardi*) populations. Biological Conservation. DOI: 10.1016/j.biocon.2015.11.019
- **K. Krynak**, D. Burke and M. Benard (2015$_a$) Larval environment alters amphibian immune defenses differentially across life stages and populations. PLOS ONE. DOI:10.1371/journal.pone.0130383.
- J. Guayasamin, T. Krynak**, K. Krynak**, J. Garcia, and C. Hutter. (2015) Phenotypic plasticity raises questions for taxonomically important traits: a remarkable new Andean rainfrog (*Pristimantis*) with the ability to change skin texture. Zoological Journal of the Linnean Society. 174(4):913-928. DOI:10.1111/zoj.12222
    - *This discovery was featured in the popular press including New York Times, National Geographic, Wired Magazine, PBS, Ranger Rick, Discovery and numerous others.*
- **K. Krynak**, R. Oldfield, P. Dennis, M. Durkalec, and C. Weldon. (2015$_b$) A novel field technique to assess ploidy in introduced Grass Carp (*Ctenopharyngodon idella*, Cyprinidae) Biological Invasions. DOI:10.1007/s10530-015-0856-9
    - *This paper was featured in FishSens Magazine and on Phys.org*
- K. Dananay, **K. Krynak**, T. Krynak, and M. Benard. (2015) Legacy of road salt: apparent positive larval effects counteracted by negative post-metamorphic effects in wood frogs. Environmental Toxicology and Chemistry. DOI: 10.1002/etc.3082.

Publications (continued)

- **K. Krynak**, D. Burke and M. Benard (*In Revision*) Rodeo™ herbicide exposure decreases larval survival and alters skin-microbiome of *Acris blanchardi* differentially across life stages. Environmental Toxicology and Chemistry.

Selected Professional Presentations

- *Practically non-toxic? Effects of Rodeo™ herbicide on Acris blanchardi across life stages.* Oral Presentation. Integrated Research Challenges in Environmental Biology meeting. 2015. Arizona State University. **Co-authors:** D. Burke, and M. Benard.
- *Landscape and water characteristics correlate with immune defense trait differences across Blanchard's Cricket frog (Acris blanchardi) populations.* Poster Presentation. Early Career Scientists Symposium, University of Michigan. 2015. **Co-authors:** D. Burke and M. Benard.
- *Are amphibian skin associated microbial communities regulated by the host, the external environment, or both?* Oral presentation. Ecological Society of America. August 2014. Sacramento, CA. **Co-authors:** D. Burke and M. Benard.
- *It's not easy being green: Effects of environmental change on amphibian immune defense traits.* Invited Talk. Brown Bag Lecture Series. 2014. Cleveland Museum of Natural History.
- *Practically non-toxic to aquatic organisms? The effects of Rodeo herbicide on Northern Cricket Frogs (Acris crepitans).* Poster Presentation. Ohio Biological Survey Natural Resources Conference 2014. **Co-author:** M. Benard.
- *Effects of environmental change on amphibian immune defense traits.* Invited Talk. Biology Departmental Seminar Series. 2013. John Carroll University.
- *Do small changes to larval habitat pH alter Bullfrog (Rana catesbeiana) immune defenses?* Invited Student Presentation. 2013. National Nonpoint Source Monitoring conference **Co-authors:** D. Burke, and M. Benard.
- *Does Larval Habitat pH influence Rana catesbeiana immunological defenses post-metamorphosis?* Poster Presentation. Mid-West Partners in Amphibian and Reptile Conservation conference 2012. **Co-authors:** D. Burke, and M. Benard.
- *It's not easy being green: the effects of environmental change on amphibian health* Invited Talk. Fridays in the Garden Lecture Series. 2012. The Holden Arboretum.
- A*mphibian colonization dynamics of vernal pools in northeastern Ohio.* Invited Talk. 4th Bi-Annual Natural Resources Field Research Symposium. 2010. Cleveland Metroparks. **Co-author:** M. Benard.

Teaching & Mentoring Experience

Summer 2015-present: *Masters student research mentor:* Cleveland Metroparks Zoo

- Mentoring graduate student Michael Monson of Cleveland State University in assessment of gut microbiome analyses of captive Masai Giraffes from Cleveland Metroparks Zoo.

Spring 2015: *Cells and Proteins Laboratory (Biol 215) Graduate Teaching assistant:* Case Western Reserve University

- Grading and recitation instructor for this introductory course; teaching manuscript preparation during recitation sections; grading laboratory reports.

Teaching & Mentoring Experience (continued)

Fall 2014-present: *Masters student committee member; Adjunct Professor Grand Valley State University*

- Mentoring graduate student Anna Harris of Grand Valley State University, MI. Project: Amphibian conservation (Centrolenidae) in neotropical cloud-forest streams using stable isotopes to measure energy subsidies.

Fall 2014 and 2010: *Herpetology (Biol 305) Graduate Teaching Assistant*: Case Western Reserve University

- Laboratory instructor at CWRU, Squire Valleevue Farm, Cleveland Metroparks Zoo, and The Cleveland Museum of Natural History; teaching in the classroom as well as in the field, developing laboratory teaching materials, preparing specimens, grading, and proctoring exams.

Summer 2014: *Undergraduate research mentor*: The Holden Arboretum/Kent State University

- Mentored Kent State undergraduate student (Alexa Wagner) with two molecular research studies culminating in presentation of two posters at The Holden Arboretum's annual Summer Internship Symposium.

Spring 2014- present: *Tropical Ecology and Conservation (Bio417/NRM407) Co-instructor, Adjunct Professor*: Grand Valley State University

- Co-instructs and serves as natural history guide, providing undergraduate students with the experience of conducting biological research on the diverse taxa of the Andean Cloud-forest at Reserva Las Gralarias, Ecuador. *To be taught again in May 2016*.

Fall 2013: *Undergraduate research mentor*: Case Western Reserve University

- Mentored Case Western Reserve University undergraduates (Henry Hershey, Belle Perez, Julia Boehler, and Laura Hill) in morphological analysis and behavioral analysis of *R. catesbeiana* larvae as part of a project examining the effects of larval habitat acidification and canopy cover on larval traits.

Spring 2011: *Ichthyology (Biol 338/438) Graduate Teaching Assistant*: Case Western Reserve University

- Assisted in teaching hands-on field and museum components of the course, preparing specimens, grading, and proctoring exams.

Previous Employment

Spring 2009- Summer 2010: Research Assistant: Benard Laboratory, Case Western Reserve University

- Assisted PI in studies of amphibian ecology including large scale mesocosm studies, quantitative pond sampling, data analysis in ARC GIS, specimen identification, and presentation of research.

2001- 2008: Animal Keeper: Cleveland Metroparks Zoo

- Responsible for general care, husbandry, exhibit design and construction for a diverse group of animals within the facility's RainForest as well as specialized exhibits throughout the park.
- Conducted research studying innate immune defense traits of Panamanian Golden Frogs in collaboration with Dr. Brandon Sheafor, Dr. Jonathan Scott and their undergraduate student researchers of Mount Union College.

Previous Employment (continued)

- Extensive field work in association with Project Golden Frog/Atelopus Conservation Trust, Smithsonian Tropical Research Institute in Panama, and El Valle Amphibian Conservation Center in Panama.
- Co-creator of the "Leap into Action", a local amphibian conservation initiative designed to increase public awareness of the global amphibian crisis and wetland conservation. $17,000 was raised for vernal pool construction and amphibian conservation research in Cleveland Metroparks. Awarded The 2009 Apex *Grand Award* for Publication Excellence (category: Campaigns, Programs & Plans).
- Mentored Auburn Career Center high school students in the creation of a short animated film called *Leap into Action: Solving the Amphibian Crisis* (http://www.youtube.com/watch?v=p5d33bJpPw0)
- Distance Learning speaker for Cleveland Metroparks Zoo conservation education department.

Outreach Activities

- 2015 #PunkRockFrog viral campaign in partnership with the Amphibian Survival Alliance; Highlights the need for habitat protection in response to newly described shape-shifting frog species, *Pristimantis mutabilis* DOI: 10.1111/zoj.12222
- 2014 The Holden Arboretum Leaves Magazine. Authored a popular science style article titled: *It's not easy being green: The effects of environmental change on amphibians.*
- 2013 and 2014 Educational workshop for Painesville City Schools at The Holden Arboretum: assisted with instructional exercises aimed at introducing middle school students to the ideas of soil microbiota and how scientists estimate diversity and richness in soil communities.
- 2013 Science In Action- Cricket Frogs: Guest lecturer of a family program for Wood County Park District regarding my studies of Cricket Frog immune defenses.
- 2009-2011 Environmental Heroes: Guest lecturer instructing middle school students how to quantitatively sample wetlands for amphibians.
- 2005-2009 Annual invited guest instructor Escuela Rio Tumbes elementary school, Ecuador.
- 2008 National Geographic: worked with Senior Writer Jennifer Holland and Photographer Joel Sartore in Ecuador on an article published in 2009 regarding the global amphibian crisis as well as footage for their website:(http://ngm.nationalgeographic.com/2009/04/amphibian/sartore-photography).
- 2008 Jason Project: Distance Learning programs for hundreds of local elementary school children discussing the implications of global amphibian declines and what children can do to help conserve amphibians.
- 2008 Year of the Frog: Performed biweekly public talks regarding amphibian conservation for various organizations throughout the Cleveland area and co-authored text for the educational website (http://www.clemetzoo.com/forfrogs).
- 2005-2009 Las Gralarias Foundation: Co-editor of the foundation's newsletter "The Hum…" Currently (2005-present) writes articles for each edition of "The Hum…" as well as LGF's new short communication "The Chirp".

Independent International Conservation Efforts

2005-Present: Founding Board Member, Secretary, Research Coordinator, Biologist, Social Media administrator: Las Gralarias Foundation, Inc.

- Coordinates scientific research conducted at Reserva Las Gralarias (RLG), Ecuador.
- Conducts biological surveys of birds, bats, reptiles, fish, and amphibians at RLG.
- Organizes fundraising programs, presentations, marketing, and publication of the organization's newsletter "The Hum…" which can be viewed at www.lasgralariasfoundation.org.
- Promotes research, education and outreach opportunities at Reserva Las Gralarias including bird banding, wildlife monitoring, water quality monitoring, service projects such as native tree propagation and planting as part of on-going reforestation efforts, and educational programming at the local elementary school *Escuela Rio Tumbes*.

2002-2006: Project Golden Frog: Field volunteer, Panama

- Assisted in field expeditions in search of previously undocumented *Atelopus varius* and *A. zeteki* populations in the tropical forests of Panama, data/sample collection for Dr. Roberto Ibanez of Smithsonian Tropical Research Institution, construction of El Valle Amphibian Conservation Center (EVACC), and in the care of newly rescued amphibians for EVACC in the wake of the chytridiomycosis outbreak in Panama.

Professional Memberships and Service

- Society for the Study of Amphibians and Reptiles, Herpetologists' League, Ecological Society of America
- 2013 Cleveland Metroparks Zoo- Conservation Endowment Fund grant reviewer
- 2013 SOURCE program application reviewer for Case Western Reserve University
- 2011-2013 Manuscript reviewer for Herpetological Review, Diseases of Aquatic Organisms, Biological Conservation
- 2011 Poster judge for Case Western Reserve University Intersections undergraduate poster competition

Professional Certification

- ESRI ArcGIS 9.2