

Gary M. Bucciarelli

CURRICULUM VITAE

DEPARTMENT OF ECOLOGY & EVOLUTIONARY BIOLOGY
UNIVERSITY OF CALIFORNIA, LOS ANGELES
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EDUCATION

University of California, Los Angeles

Ph.D., Biology: Department of Ecology and Evolutionary Biology, 2015

Dissertation Title: *Phenotypic variation of toxin levels in a chemically defended amphibian: The ecological and evolutionary significance of tetrodotoxin.*

Committee: H. Bradley Shaffer (chair), Gregory Grether, Thomas Smith, Lee Kats, David Green

Antioch College

B.A., Interdisciplinary Cultural Studies, 2002

Senior Thesis Committee: Christine Hill (advisor), Anne Bohlen (department chair), Bob Devine (Antioch President)

PROFESSIONAL POSITIONS

2018 - Present Assistant Adjunct Professor
University of California, Los Angeles; *Department of Ecology and Evolutionary Biology*

2016 - Present Adjunct Faculty
Pepperdine University; *Natural Science Division*

2015 - Present Director of Research
UC Natural Reserve System; *Stunt Ranch Santa Monica Mountains Biological Reserve*

2015 - 2018 Postdoctoral Researcher
University of California, Los Angeles
In collaboration with the Institute of the Environment & Sustainability, La Kretz Center for Conservation Science and The National Park Service, Santa Monica Mountains National Recreation Area

- 2013 - 2014 Research Scientist
The Malibu Institute
 Project: *The impacts of non-native species on stream invertebrates and amphibians*
- 2013 - 2015 Public Outreach Coordinator
University of California, Los Angeles
Institute of the Environment & Sustainability, La Kretz Center for Conservation Science
- 2012 Research Scientist
Graniterock Consulting
 Project: *The molecular ecology of native and non-native alleles in the Federally-endangered California tiger salamander*
- 2011 Research Assistant
Rincon del Socorro; Ibera wetlands, Argentina
 Project: *The ecology of vertebrates in a restored wetland*
- 2009 - 2012 Research Assistant and Mentor
La Selva Biological Preserve, Costa Rica
 Project: *Behavioral avoidance of ultraviolet radiation in calling male poison dart frogs*
- 2005 - 2010 Executive Manager
Apple Inc., Cupertino, CA
 150 direct reports; responsible for \$40 million of revenue; staffed the Los Angeles market

FUNDING & AWARDS

- 2019 **National Science Foundation:** (In Revision)
 Project: *Of Poisons, pathogens, and parasites: the hidden role of infection in animal toxicity*
- 2019 **National Science Foundation:** \$452,000 (In Revision)
 Project: *Using sentinel species to predict population outcomes in human-altered environments*
- 2019 **Las Virgenes Municipal Water District:** \$125,000
 Project: *Direct potable reuse as drinking water: public perceptions and ecological effects*
- 2015 **United States Department of the Interior:** \$270,000
 Project: *A genomics based conservation management plan for amphibians of the greater Los Angeles area*
- 2015 **Las Virgenes Municipal Water District:** \$95,000
 Project: *The characterization, evaluation, and control of invasive species in Los Angeles watersheds*
- 2015 **UCLA**
 Dissertation Year Fellowship

- 2014 **The National Park Services:** \$7,500
Project: *The impact of invasive species removal on amphibians and aquatic macroinvertebrates*
- 2014 **Malibu Institute:** \$15,000
Project: *Reintroduction of local amphibian species into restored habitat*
- 2013 **UCLA La Kretz Center:** \$7,000
Project: *Do predator cues induce increased toxin levels in a chemically defended amphibian?*
- 2013 **University of California Natural Reserve System:** \$4,500
Project: *Phenotypic variation through space and time of toxin levels in a chemically defended amphibian*
- 2013 **UCLA**
Life Sciences *Distinction in Teaching Award*
- 2011 **National Science Foundation:**
Graduate Research Fellowship Program - *Honorable Mention*
- 2011 **UCLA**
Departmental Fellowship
- 1998 **Antioch College**
Horace Mann Fellowship

PEER-REVIEWED PUBLICATIONS (* denotes mentored undergraduate or ‡graduate researcher)

- 17) ‡ van Riemsdijk, I., Arntzen, J.W., **Bucciarelli, G.M.**, McCartney-Melstad, E., Rafajilovic, M., Scott, P.A., Toffelmier, E., Shaffer, H.B., & Wielstra, B. (In Review). Spatial variation in introgression along a toad hybrid zone in France. *Molecular Ecology*.
- 16) **Bucciarelli, G.M.**, * Smith, S.J., * Choe, J., * Shin, P., & Kats, L.B. (In Review). Amphibian neurotoxins alter the behavior of invasive crayfish. *Hydrobiologia*.
- 15) Grear, D., Mosher, B., Grant, E., Adams, M., Backlin, A., Barichivich, W., Brand, A., **Bucciarelli, G.M.**, Calhoun, D., Chestnut, T., Davenport, J., Dietrich, A., Fisher, R., Glorioso, B., Halstead, B., Hayes, M., Honeycutt, R.K., Hossack, B., Kleeman, P., Lemos-Espinal, J., Lorch, J., McCreary, B., Muths, E., Pearl, C., Richgels, K., Robinson, C., Rowe, J., Sigafus, B., Stasiak, I., Sweet, S., Walls, S., Watkins-Colwell, G., White, C., Williams, L., & Winzeler, M. (In Revision). *Batrachochytrium salamandrivorans* (Bsal) not detected in an intensive survey of North American amphibians. *Scientific Reports*.
- 14) **Bucciarelli, G.M.**, * Clark, M.A., Shaffer, H.B., Fisher, R.N., Delaney, K.S., Riley, S.P.D., Honeycutt, R.L. & Kats, L.B. (2020). Amphibian responses in the aftermath of extreme climate events. *Scientific Reports*.

- 13) Valliere, J.M., **Bucciarelli, G.M.**, Bytnerowicz, A., Fenn, M.E., Irvine, I.C., Johnson, R.F., & Allen, E.B. (2020). Declines in native forb richness of an imperiled plant community across an anthropogenic nitrogen deposition gradient. *Ecosphere*.
- 12) Valliere, J.M., * Escobedo, E., **Bucciarelli, G.M.**, Sharifi, M., & Rundel, P. (2019). Invasive annuals respond more negatively to drought than native species. *New Phytologist*.
- 11) **Bucciarelli, G.M.**, * Suh, D.S., * Davis, A., Roberts, D., Sharpton, D., Shaffer, H.B., Fisher, R.N., & Kats, L.B. 2018. Assessing effects of non-native crayfish on mosquito survival. *Conservation Biology*.
- **Among the top 10% of most downloaded papers in 12 months following publication**
 - Featured by National Geographic, NPR, and iHeart Radio
- 10) * Ota, W.M., *Olsen, B., **Bucciarelli, G.M.**, & Kats, L.B. 2018. The effect of newt toxins on an invasive snail. *Hydrobiologia*. 817: 341-348.
- 9) † Velasco, M.A., Berkunsky, I., Simony, M.V., Quiroga, S., **Bucciarelli, G.M.**, Kats, L.B., & Kacoliris, F.P. 2017. The rainbow trout is affecting the occupancy of amphibians in Patagonia. *Hydrobiologia*. 817: 447-455.
- 8) **Bucciarelli, G.M.**, Green, D.B., Shaffer, H.B., & Kats, L.B. 2017. An amphibian chemical defense phenotype is inducible across life history stages. *Scientific Reports*. 7: 8185.
- 7) † Calhoun, D.M., **Bucciarelli, G.M.**, Kats, L.B., Zimmer, R.K., & Johnson, P.T.J. 2017. Noxious newts and their natural enemies: Experimental effects of tetrodotoxin exposure on trematode parasites and aquatic macroinvertebrates. *Toxicon*. 137: 120-127.
- 6) **Bucciarelli, G.M.**, Green, D.B., Shaffer, H.B., & Kats, L.B. 2016. Individual fluctuations in toxin levels affect breeding site fidelity in a chemically defended amphibian. *Proceedings of the Royal Society: B*. 283: 20160648.
- 5) **Bucciarelli, G.M.** & Kats, L.B. 2015. Effects of newt predator cues on the distribution and foraging of stream macroinvertebrates. *Hydrobiologia*. 749: 69-81.
- 4) **Bucciarelli, G.M.**, Blaustein, A.R., Garcia, T. & Kats, L.B. 2014. Invasion complexities: The diverse impacts of invasive species on amphibians. *Copeia*. 4: 611-632.
- 3) **Bucciarelli, G.M.**, * Li, A., Kats, L.B., & Green, D.B. 2014. Quantifying tetrodotoxin levels in the California Newt using a non-destructive sampling method. *Toxicon*. 80: 87-93.
- 2) Kats, L.B., **Bucciarelli, G.M.**, Vandergon, T.L., Honeycutt, R.L. * Mattiasen, E., * Sanders, A., Riley, S.P., Fisher, R.N. 2013. Effects of natural flooding and manual trapping on the facilitation of invasive crayfish-native amphibian coexistence in a semi-arid perennial stream. *Journal of Arid Environments*. 98: 109-112.

- 1) Kats, L.B., **Bucciarelli, G.M.** * Schlais, D.E., Blaustein, A.R., & Hahn, B. 2013. Ultraviolet radiation influences perch selection by a neotropical poison dart frog. *PLoS ONE*. 7(12).

REPORTS

- 2019 “*A conservation management plan for amphibians of greater Los Angeles informed by landscape genomics*” prepared by G.M. Bucciarelli, K.M. Pease, K.S. Delany, S.P.D. Riley, and H.B. Shaffer for the **National Park Service**. In preparation.
- 2017 “*Characterization, evaluation, and control of invasive species in Los Angeles watersheds*” prepared by G.M. Bucciarelli, D. Sharpton, and L.B. Kats for the **Los Angeles Regional Water Quality Board**.

TEXTBOOKS & BOOKS

- 2019 **Reviewer**
West Southwest: Vertebrate Life in Southern California by Gregory Pregill
- 2014 **Reviewer**
Essentials of Ecology (4 ed.) by M. Begon, C.R. Townsend, and R.W. Howarth
- 2013 **Content Consultant**
The Science of Life: Food Webs by Carol S. Surges

TEACHING EXPERIENCE

- 2019 - Present **UCLA:** *Ecology (Instructor)*
- 2018 - Present **UCLA:** *Evolution (Instructor)*
- 2016 - Present **Pepperdine University:** *Biostatistics; Experimental Design; Ecology (Instructor)*
- 2014 **UCLA:** Field Biology Quarter - *The Ecology of California Amphibians and Reptiles*
- 2013 - 2015 **UCLA:** *Molecular, Cellular, & Developmental Biology; Teaching Practicum (Instructor)*
- 2012 **UCLA:** *Introduction to Evolution*
- 2011 **UCLA:** *Ecological Responses to Environmental Challenges*
- 2002 **Antioch College:** *Media and Social Change*
- 2001 **Antioch College:** *Media Literacy and Production*

INVITED LECTURES

- 2020 National Park Service, Thousand Oaks, CA
2020 San Diego Natural History Museum, San Diego, CA
2019 Pepperdine University, Seaver College, Malibu, CA
2017 California State University, Northridge, Department of Biology, Los Angeles, CA
2016 Imperial College, Department of Ecology and Evolutionary Biology London, United Kingdom
2016 La Plata University, Department of Ecology La Plata, Argentina
2015 Pepperdine University, Department of Biology Malibu, CA
2014 The Chautauqua Series Temescal Canyon Park, Pacific Palisades, CA
2014 Southwestern Herpetological Society Pasadena, CA
2014 Mountains Recreation and Conservation Authority Pacific Palisades, CA
2014 Cold Creek Docents Calabasas, CA
2013 California Native Plant Society Santa Monica, CA
2013 Las Virgenes Municipal Water District Calabasas, CA
2012 Topanga Canyon Docents Malibu, CA
2010 Santa Monica College, Department of Biology Santa Monica, CA

PRESENTATIONS (* denotes mentored undergraduate)

G.M. Bucciarelli, * D. Hu, D.B. Green, H.B Shaffer, and L.B. Kats, “Fluctuating toxins and the evolution of chemical defenses in a poisonous amphibian.” 2020. **World Congress of Herpetology.**

* D. Addison, * B. Muramoto, * D. Rizzo, L.B. Kats, and G.M. Bucciarelli. “Effects of TTX on the movement, metamorphosis, and mortality of mosquito larvae.” 2019. **Southern California Conference for Undergraduate Research.** Mentor.

* M. Sturtevant, * C. Russel, R. Garcia, G.M. Bucciarelli, and L.B. Kats. “Tetrodotoxin reduction due to antibiotics in the California newt.” 2019. **Southern California Conference for Undergraduate Research.** Mentor.

G.M. Bucciarelli, * D. Hu, D.B. Green, H.B Shaffer, and L.B. Kats, “Assessing range wide variation of toxin defenses in a poisonous amphibian.” 2019. **Oxford Venoms and Toxins World Symposium.**

* S.J. Smith, G.M. Bucciarelli, and L.B. Kats. “Impacts of a native toxic salamander on the behavior of a stream invader.” 2019. **Ecological Society of America.** Mentor.

* A. Fontes, G.M. Bucciarelli, and L.B. Kats “The effects of symbiote ostracods on invasive crayfish behavior.” 2019. **Behavior.** Mentor.

* S.J. Smith, G.M. Bucciarelli, and L.B. Kats. “Feeding behavior of invasive crayfish, *Procambarus clarkii*, in response to native chemical cues.” 2018. **Southern California Conference for Undergraduate Research.** Mentor.

* A. Fontes, G.M. Bucciarelli, and L.B. Kats. “Removal of symbiotic ostracods and the impact of feeding behavior and conspecific aggression in host crayfish, *Procambarus clarkii*.” 2018. **Southern California Conference for Undergraduate Research.** Mentor.

* W. Ota, * B. Olsen, G.M. Bucciarelli, and L.B. Kats. “The effect of an amphibian toxin on an invasive snail.” 2017. **Ecological Society of America**. Mentor.

L.B. Kats, and G.M. Bucciarelli. “The influence of UV radiation on tropical dart frog behavior.” 2017. **Southern California Academy of Sciences 110th Annual Meeting**.

* A. Flores, G.M. Bucciarelli, D.B. Green, and L.B. Kats. “Tolerance to aquatic nitrate toxicity may contribute to the invasive potential of globally introduced crayfish.” 2016. **Southern California Conference for Undergraduate Research**. Mentor.

* A. Flores, G.M. Bucciarelli, D.B. Green, and L.B. Kats. “The effect of nitrate on the release of glucose into the hemolymph of crayfish.” 2016. **National Meeting of the American Chemical Society**. Mentor.

G.M. Bucciarelli, H.B Shaffer, D.B. Green, and L.B. Kats. “Phenotypic variation in space and time of toxin levels in a chemically defended amphibian.” 2015. **Ecological Society of America**.

G.M. Bucciarelli, H.B Shaffer, D.B. Green, and L.B. Kats. “Fluctuations in toxin levels of a chemically defended amphibian.” 2015. **Oxford Venoms and Toxins World Symposium**.

G.M. Bucciarelli, H.B Shaffer, D.B. Green, and L.B. Kats. “Temporal variation in toxin levels of a chemically defended amphibian.” 2015. **American Society of Ichthyologists and Herpetologists**.

G.M. Bucciarelli, H.B Shaffer, D.B. Green, and L.B. Kats. “Tracking newts and defensive toxin levels through time in the Santa Monica Mountains.” 2015. Meeting of the **California-Nevada Amphibian Populations Task Force**.

* A. Li, G.M. Bucciarelli, L.B. Kats and D.B. Green. “Reduced sample size and improved extraction and recovery of tetrodotoxin from the California newt, *Taricha torosa*.” 2014. **National Meeting of the American Chemical Society**. Mentor.

M. Gidis, G.M. Bucciarelli, U. Kaya, and H.B. Shaffer. “Lyciasalamandra genus: A status review using next-generation sequencing methods.” 2014. **American Society of Ichthyologists and Herpetologists**.

G.M. Bucciarelli. “Phenotypic variation in space and time of an amphibian chemical defense.” 2014. **University of California Natural Reserve System Annual Symposium**.

* A. Sokolova, A., * N. Huron, * A. Reimer, G. Bucciarelli and L.B. Kats. “Effects of Tetrodotoxin on New Zealand Mud Snails (*Potamopyrgus antipodarum*).” 2013. **Southern California Conference for Undergraduate Research**. Mentor.

* J.M. Buie, * N. Novella, * J. Liao, * C.M. Sutter, Kats, L.B., and G.M. Bucciarelli. “Stream current as a limiting factor for aquatic invasive species in southern California streams.” 2013. **International Conference on Challenges in Aquatic Sciences**.

* Sutter, C.M., * N.A. Novella, L.B. Kats and G. Bucciarelli. “Effects of ultraviolet light on male aggression in the strawberry poison dart frog, *Oophaga pumilio*” 2012. **Southern California Conference for Undergraduate Research**. Mentor.

* J. Liao, * A. Nakahar, * A. Sokolova, G. Bucciarelli and L.B. Kats. “Activated carbon adsorption of tetrodotoxin in post fire streams?” 2012. **Southern California Conference for Undergraduate Research**. Mentor.

* N. Huron, L.B. Kats and G.M. Bucciarelli. “A comparison of auditory and visual cues in the territorial behavior of the strawberry poison dart, *Oophaga pumilio*.” 2012. **Southern California Conference for Undergraduate Research**. Mentor.

* A. Chowaniec, G.M. Bucciarelli, L.B. Kats and D. B. Green. "An improved method for the analysis of tetrodotoxin by high performance liquid chromatography coupled with fluorescence detection." 2011. **Western Regional Meeting of the American Chemical Society.**

G.M. Bucciarelli, * D.E. Schlais and L.B. Kats. "Ultraviolet radiation influences perch selection by a neotropical poison dart frog." 2011. **Joint Meeting of Ichthyologists and Herpetologists.**

* A. Sanders, * E. Uemura, * E.G. Mattiasen, * N. Huron, * C. Sutter, L.B. Kats and G.M. Bucciarelli. "The influence of flood events on the long-term coexistence of native amphibians." 2010. **Southern California Conference for Undergraduate Research.** Mentor.

* E.G. Mattiasen, * A. Chowaniec, L.B. Kats and G.M. Bucciarelli. "Vulnerability of native caddisfly species to invasive crayfish in the Santa Monica Mountains." 2010. **Southern California Conference for Undergraduate Research.** Mentor.

* J. Chung, * C. Hwang, * M. Bender, * F. Sapigao, G.M. Bucciarelli, T. Vandergon, R.L. Honeycutt, and L.B. Kats. "Long term coexistence of native amphibians and invasive crayfish mediated by flood events." 2010. **Joint Meeting of Ichthyologists and Herpetologists.**

JOURNAL REFEREE

Biological Invasions (2)	Journal of Arid Environments (1)
BMC Evolutionary Biology (1)	Journal of Animal Ecology (1)
Conservation Biology (3)	Journal of Chemical Ecology (3)
Copeia (1)	Marine Drugs (1)
Diversity (2)	Oecologia (2)
Ecohealth (1)	Phylomedusa (1)
Endangered Species Research (1)	PLoS ONE (1)
Ecology and Evolution (2)	Toxicon (4)
Freshwater Biology (2)	Toxins (1)
Hydrobiologia (8)	

SERVICE & OUTREACH

2018 - Present	Amigos de los Rios Technical Advisory Committee
2016 - Present	UC Natural Reserve System (NRS) Board of Councilors
2016 - Present	UC Office of the President Universitywide Advisory Board, UC NRS
2016	UC NRS; Committee Chair to assess incorporation of Pt. Reyes National Park into NRS
2015 - Present	California Cooperative Ecosystem Studies Unit (CA CESU) UCLA Representative
2013 - 2015	UCLA Committee on Diversity and Equal Opportunity (CODEO) Graduate Member
2013 - Present	Collaborative Science Agenda on Climate Change in Southern California Member
2012 - 2019	Cold Creek Docents & Topanga Docents Volunteer instructor

- 2010 - 2016 **National Park Services** Volunteer at ScienceFest (5,000+ visitors)
- 2010 - 2015 **Los Angeles Natural History Museum** Volunteer at Reptile and amphibian appreciation day (RAAD), NatureFest; and Reptiles and Amphibians of Southern California (RASCals) community science project

SELECT PRESS

The Center for Biological Diversity's **The Revelator**

National Geographic

NPR "Take Two" on-air interview with A Martínez, August 9, 2018

KFI AM640 iHeartRadio Network interview with Monica Rix, August, 13 2018

Malibu Surfside News