

Pablo E. Gutiérrez-Fonseca

Department of Biology
Center for Research in Marine Science and Limnology
University of Costa Rica
P.O. Box 11501-2060
San José, Costa Rica

telephone: (+506) 8483 3796
e-mail: gutifp@gmail

Education

- | | |
|------|--|
| 2016 | Ph.D., Ecology and Systematics, University of Puerto Rico, Río Piedras, Puerto Rico. Dissertation Advisor: Ph.D. Alonso Ramírez. |
| 2009 | Lic., Aquatic Sciences, University of Costa Rica, San José, Costa Rica. Dissertation Advisor: MSc. Monika Springer. |
| 2005 | B.A., Biology, University of Costa Rica, San José, Costa Rica. |

Positions

- | | |
|--------------|---|
| 2018-current | Assistant Professor, Department of Biology, University of Costa Rica. |
| 2018-current | Researcher, Center for Research in Marine Science and Limnology, University of Costa Rica. |
| 2016-2018 | Postdoctoral Research Associate, Luquillo Long Term Ecological Research (LTER) program. University of Puerto Rico, Río Piedras. |

Honors & Awards

- | | |
|------|--|
| 2012 | Best student oral presentation award, second place. First Latin-American Congress of Aquatic Macroinvertebrates. San Jose, Costa Rica. |
| 2010 | Distinguished Licentiate Thesis, University of Costa Rica. |

Research Grants

- | | |
|-----------|---|
| 2020-2022 | The Ministry of Science, Technology and Telecommunications of Costa Rica. Global observatory network for freshwater biodiversity in high mountain streams. Co-PI, MSc. Monika Springer. \$85105. |
| 2014-2015 | The Rufford Foundation, Rufford Small Grants (Ref: 15017-1), United Kingdom. Key factors for aquatic macroinvertebrate conservation in the face of global climate change. \$9006. |

Publications (24 publications in total)

*graduate student co-authors, **undergraduate co-authors

- Classen-Rodríguez, L.**, **Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2019. Leaf-litter decomposition and macroinvertebrate assemblages along an urban stream gradient in Puerto Rico. *Biotropica*, 51:641–651.

- Bravo, F.*, Romero, D., **Gutiérrez-Fonseca, P.E.** & S., Echeverría-Sáenz. 2019. The description of *Anacroneuria suerre* sp. nov. from Costa Rica (Plecoptera: Perlidae) and using nymphs in ecotoxicological studies. *Zootaxa*, 4608(2), 357-364.
- Wohl, E., Hinshaw, S.K., Scamardo, J.E., & **P.E. Gutiérrez-Fonseca**. 2019. Transient Organic Jams in Puerto Rican Mountain Streams After Hurricanes. *River Research and Applications*, 35, 280–289.
- Ramírez, A., **Gutiérrez-Fonseca, P.E.**, Kelly, SP., Engman, A.C., Wagner, K., Rosas, K.G., & N., Rodríguez. 2018. Drought facilitates species invasions in urban streams: Results from a long-term study of tropical island fish assemblage structure. *Frontiers in Ecology and Evolution*, 6, 115.
- Gutiérrez-Fonseca, P. E.**, Ramírez, A., & C.M., Pringle. 2018. Large-scale climatic phenomena drive fluctuations in macroinvertebrate assemblages in lowland tropical streams, Costa Rica: The importance of ENSO events in determining long-term (15y) patterns. *PLoS One*, 13(2), e0191781-e0191781.
- Forero Céspedes, A.M.*, **Gutiérrez-Fonseca, P.E.**, & A., Ramírez. 2017. Facilitation between shrimps and mayflies in montane stream ecosystems, Puerto Rico. *Revista de la Asociación Colombiana de Ciencias Biológicas*, 1(29), 15–20.
- Klem, C.C.** & **P.E. Gutiérrez-Fonseca**. 2016. CO₂-driven experimental acidification effects on aquatic macroinvertebrates in a tropical stream. *Journal of Freshwater Ecology*, 32(1), 195–204.
- Cornejo, A. & **P.E. Gutiérrez-Fonseca**. 2016. Orden Plecoptera (Insecta) en Panamá: Listado y distribución de especies, comparación con la riqueza taxonómica regional. *Puente Biológico*, 7, 109–129.
- Ramírez, A., & **P.E., Gutiérrez-Fonseca**. 2016. Sobre ensambles y ensamblajes ecológicos-respuesta a Monge-Nájera. *Revista de Biología Tropical*, 64(2), 817–819.
- Gutiérrez-Fonseca, P. E.**, & A., Ramírez. 2016. Evaluación de la calidad ecológica de los ríos en Puerto Rico: principales amenazas y herramientas de evaluación. *Hidrobiológica*, 26(3), 433-441.

Manuscripts submitted

- Gutiérrez-Fonseca, P.E.**, Ramírez, A., Pringle, C.M., Torres, P.J., Crowl, T., Covich, A., Pérez, O. & W.H., McDowell. 2018. When the rainforest dries up: drought effects on a tropical rainforest stream in Puerto Rico. Accepted in *Freshwater Sciences*.

Peer-Reviewed Book Chapters

- Ramírez, A. & **P.E. Gutiérrez-Fonseca**. 2014. Puerto Rico. En: Alonso-EguíaLis, P., Mora, J.M., Campbell, B. y M. Springer (eds). *Diversidad, conservación y uso de los macroinvertebrados dulceacuícolas de México, Centroamérica, Colombia, Cuba y Puerto Rico*. Instituto Mexicano de Tecnología del Agua, Jiutepec, Morelos, México.
- Springer, M., Echeverría-Sáenz, S. & **P.E. Gutiérrez-Fonseca**. 2014. Costa Rica. En: Alonso-EguíaLis, P., Mora, J.M., Campbell, B. y M. Springer (eds). *Diversidad, conservación y uso de los macroinvertebrados dulceacuícolas de México, Centroamérica, Colombia,*

Cuba y Puerto Rico. Instituto Mexicano de Tecnología del Agua, Jiutepec, Morelos, México.

Special Issues as Volume Editor

Ramírez, A. & **P.E., Gutiérrez-Fonseca**. 2014. Macroinvertebrados Acuáticos de Latinoamérica. International Journal of Tropical Biology and Conservation. 62 (Supl2).

Conference Presentations (last 5 years)

- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2019. Hurricane disturbance and benthic macroinvertebrate assemblages at El Yunque National Forest, Puerto Rico. Annual meeting Society for Freshwater Science, Salt Lake City, Utah. [May 19-23]. Speaker*.
- Gutiérrez-Fonseca, P.E.**, Ramírez, A., & C.M., Pringle. 2019. Hurricane disturbance drives trophic changes in neotropical mountain streams in Puerto Rico. Annual meeting Society for Freshwater Science, Salt Lake City, Utah. [May 19-23].
- Gutiérrez-Fonseca, P.E.**, Ramírez, A., Pringle, C.M., Torres, P., Covich, A., Crowl, T., McDowell, W., Ballantyne, F., & O. Perez-Reyes. 2019. Ecological response of stream ecosystems to extreme climate events in Puerto Rico. **Association** for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico. [February 23 - March 2].
- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2019. Extreme climatic events and urban streams in Puerto Rico: effects on macroinvertebrates and fish assemblages. Association for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico. [February 23 - March 2]. Speaker*.
- Gomez-Carrasquillo, J.*, **Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2019. Hurricane effects on aquatic insect assemblages. Association for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico. [February 23 - March 2]. Speaker*.
- Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2018. If you can't catch them, create them: A whole-stream experimental flow reduction to simulate drought conditions in tropical streams. Fourth Latin American Congress of Aquatic Macroinvertebrates. Quito, Ecuador. [July 23-27].
- Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2018. Riparian litter input dynamics in tropical streams: long-term patterns and the influence of extreme climatic events. Fourth Latin American Congress of Aquatic Macroinvertebrates. Quito, Ecuador. [July 23-27].
- Springer, M.* & **P.E., Gutiérrez-Fonseca**. 2018. Estado de conocimiento taxonómico de los insectos acuáticos de América Central. Fourth Latin American Congress of Aquatic Macroinvertebrates. Quito, Ecuador. [July 23-27]. Speaker*.
- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2018. Estado actual de la investigación acuática en América Latina: Desafíos y oportunidades, Fourth Latin American Congress of Aquatic Macroinvertebrates. Quito, Ecuador. [July 23-27]. Speaker*.
- Sean, K.P.*, **Gutiérrez-Fonseca, P.E.**, & Alonso Ramírez. 2018. Impacts on the abundance and distribution of *Wendilgarda clara* Keyserling, 1886 along headwater streams of northeastern Puerto Rico affected by major hurricane disturbances. The American Arachnological Society. Michigan. [Junio 22-26] Speaker*.

- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2018. Urban streams and their response to extreme weather events: drought and hurricane impacts on stream biota, Puerto Rico. Annual meeting Society for Freshwater Science, Detroit, Michigan [May 20-24]. Speaker*.
- Covich, A.*, Crowl, T., Perez-Reyes, O., **Gutiérrez-Fonseca, P.E.**, Kelly, S., Bithorn, J., Matta, S. 2018. Effects of drought and hurricane disturbances on *Macrobrachium* dominated food webs: responses to highly variable flows. Annual meeting Society for Freshwater Science, Detroit, Michigan [May 20-24]. Speaker*.
- Gutiérrez-Fonseca, P.E.**, Ramírez A., Pringle, C.M., Torres, P.J., Covich, A., Crowl, T.A., McDowell, W., Perez-Reyes, O. 2017. Hurricane impacts to a tropical stream ecosystem in the mountains of Puerto Rico. Annual meeting Society for Freshwater Science, Detroit, Michigan [May 20-24].
- Gutiérrez-Fonseca, P.E.**, Ramírez A., Pringle, C.M., Torres, P.J., Covich, A., Crowl, T.A., McDowell, W., Perez-Reyes, O. 2017. When the rainforest dries up: Impacts of severe drought in a tropical stream. Annual meeting Society for Freshwater Science, Raleigh, North Carolina [June 4-8].
- Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2016. Análisis de la red trófica de un río tropical urbano, Puerto Rico. Third Latin American Congress of Aquatic Macroinvertebrates. Santa Marta, Colombia. [March 11-18].
- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2016. Ensamblajes de insectos acuáticos a lo largo del continuo de un río: Elevación versus disponibilidad de hábitat. Third Latin American Congress of Aquatic Macroinvertebrates. Santa Marta, Colombia. [March 11-18] Speaker*.
- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2015. Odonata of Puerto Rico: an updated list and historical records. International Congress of Odonatology. La Plata, Argentina. [November 15-20] Speaker*.

Poster Presentations (last 5 years)

- Santiago-Vera J.D.* & **Gutiérrez-Fonseca, P.E.** & A., Ramírez. 2018. Shrimps and leaf decomposition: Effect on macroinvertebrates and meiofaunal assemblages. Fourth Latin American Congress of Aquatic Macroinvertebrates. Quito, Ecuador. [July 23-27]. Speaker*.
- Morton, K.*, Faulkner, A., **Gutiérrez-Fonseca, P.E.**, Torres, P., Ramirez, A., Pringle, C.M. 2018 Lack of post-hurricane impacts on algal biofilms in two tropical headwater streams in Puerto Rico. Annual meeting Society for Freshwater Science, Detroit, Michigan [May 19-23]. Speaker*.
- Ramírez, A.*, **Gutiérrez-Fonseca, P.E.**, Kelly, S.P., Engman, A., Wagner, K., Rosas, K., & Rodríguez, N. 2017. Effects of drought- driven hydrological changes on fish assemblages in a tropical island urban stream, Puerto Rico. Symposium on Urbanization and Stream Ecology, Raleigh, North Carolina [May 31-June 3] Speaker*.
- Cornejo, A.* & **P.E., Gutiérrez-Fonseca**. 2016. El orden Plecoptera en panamá: una revisión histórica y una lista actualizada de especies. Third Latin American Congress of Aquatic Macroinvertebrates. Santa Marta, Colombia. [Marzo 11-18] Speaker*.
- Ramírez, A.* & **P.E., Gutiérrez-Fonseca**. 2015. Biodiversity of Odonata of Rio Piedras, an urban area of San Juan, Puerto Rico. International Congress of Odonatology. La Plata, Argentina. [November 15-20]. Speaker*.

- Gutiérrez-Fonseca P.E.**, Sánchez Ruiz J. & A. Ramírez. 2015. Natural history of *Telebasis vulnerata* (Hagen, 1861) (Zygoptera: Coenagrionidae) in Puerto Rico. International Congress of Odonatology. La Plata, Argentina. [November 15-20].
- Gutiérrez-Fonseca, P.E.** & A. Ramírez. 2014. Food webs topology and biomass flow in a tropical urban stream. Joint Aquatic Societies Meeting - Society for Freshwater Science. Portland, Oregon. [May 18-23].
- Sánchez-Ruiz, J.A.* , **Gutiérrez-Fonseca, P.E.**, Rosas, K.G., Ramírez, A. 2014. Assessing macroinvertebrate growth rates in the Río Piedras, a tropical urban stream, Puerto Rico. Joint Aquatic Societies Meeting - Society for Freshwater Science. Portland, Oregon. [May 18-23] Speaker*.
- Ramírez, A* . & **P.E., Gutiérrez-Fonseca, K.**, Wagner, J., Sánchez, K., Rosas, B., Vázquez. 2014. Biodiversidad y productividad de los macroinvertebrados acuáticos de un río urbano tropical, Puerto Rico. Second Latin American Congress of Aquatic Macroinvertebrates. Queretaro, Mexico. [April 7-12] Speaker*.
- Gutiérrez-Fonseca, P.E.** & A. Ramírez, CM Pringle. 2013. Long-term patterns of aquatic macroinvertebrate assemblages in lowland neotropical streams. 50th Annual meeting of Association for Tropical Biology and Conservation. San José, Costa Rica. [June 23-27].
- Gutiérrez-Fonseca, P.E.** & A. Ramírez. 2013. Effects of flood disturbance and episodic acidification events on aquatic macroinvertebrates in tropical lowland streams. Society for Freshwater Science. Jacksonville, Florida. [May 19-23].

Research Experience

- | | |
|-----------|---|
| 2014-2016 | Collaborative Research, Grupo de Investigación en Macroinvertebrados Dulceacuícolas de Panamá, Instituto Conmemorativo Gorgas, Ciudad de Panamá, Panamá. |
| 2010-2016 | Research Assistant, University of Puerto Rico, Río Piedras, Puerto Rico. |
| 2012-2016 | Research Affiliate at Museum of Zoology. University of Puerto Rico, Río Piedras, Puerto Rico. |
| 2007-2008 | Associate Researcher for a collection of aquatic macroinvertebrates in the Yeguaré watershed, Valle del Zamorano. Escuela Agrícola Panamericana, El Zamorano. PhD José Manuel Mora. Honduras. |
| 2003-2008 | Assistant in the Zoological Museum of the University of Costa Rica. Aquatic macroinvertebrates collection, M.Sc. Monika Springer. Costa Rica. |

Teaching Experience

- Professor, Stream Ecology. University of Costa Rica. Spring 2019.
- Professor, Aquatic Entomology. University of Costa Rica. Fall 2018, 2019.
- Teaching Assistant, General Biology II. University of Puerto Rico. Fall 2012, 2013.
- Teaching Assistant, General Botany. University of Puerto Rico. Spring 2012, 2013.
- Lecture, Macroinvertebrates as indicators of environmental quality of streams. University Rafael Landívar, Guatemala. April 2010.
- Lecture, Macroinvertebrates as indicators of environmental quality of streams and rivers. University of El Salvador, El Salvador. June 2008.

Manuscript reviewer

Caldasia (2), Freshwater Science (2), Gayana (1), Global Change Biology (1), Hidrobiologica (3), Hydrobiologia (5), Illiesia (1), Inland Waters (1), Insecta Mundi (1), International Review of Limnology (1), International Review on Hydrobiology (1), Journal of Freshwater Ecology (1), Journal of Limnology (1), Neotropical Biodiversity (2), PLoS One (1), Revista Actualidades Biológicas (2), Revista de Biología Tropical (15), Revista Intropica (3).

Professional Memberships

Society for Freshwater Science (previously: North American Benthological Society)
Association for the Sciences of Limnology and Oceanography (ASLO)
Sociedad Mesoamericana para la Biología y la Conservación.

Committee involvement

Early Career Committee, Society for Freshwater Science (2017-current)
Board of Directors, Latin-American Society for Freshwater Ecosystems (2018-current)

Workshops

Campbell Scientific Training. Campbell Scientific, Inc. San Juan, Puerto Rico. 2018.
Caribbean Ecological Drought Workshop. San Juan, Puerto Rico. May 30-31, 2018.
Aquatic Macroinvertebrates of Mesoamérica. Tabasco, México. 2010.

Students mentored

Andrea Manzano, Universidad de Puerto Rico Recinto Mayaguez, REU-Summer 2015.
Crystal Purcell, University of Dallas, REU-Summer 2014.
Ismael Oregon, Universidad Metropolitana, REU- Summer 2013.
Lelanee Ortiz Rivas, University of Humacao, REU- Summer 2011.