

# RYAN P. FERRER

Assistant Professor of Biology

Seattle Pacific University

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## EDUCATION

- 2002 - 2007     **University of California, Los Angeles**  
Ph.D. Ecology and Evolutionary Biology  
Dissertation: Hide and seek: The effects of dual chemical signals on predator and prey behaviors in a complex food web.  
Advisors: Richard K. Zimmer, Ph.D. & Cheryl Ann Zimmer, Ph.D.
- 1996 - 2000     **Pepperdine University**  
B.S. Biology  
Advisor: Lee B. Kats, Ph.D.

## PROFESSIONAL EXPERIENCE

- 2010 - Present     **Associate Professor of Biology** (Tenure track), Seattle Pacific University  
Courses taught: Environmental Physiology (BIO 4256), Tropical Biology of the Galapagos (BIO 3301), Biology Core Curriculum (BIO 2101, 2012, 2013), Biology for Elementary Education (BIO 2570), Biology of Toxins and Venoms (USEM 1000), Scientific Literature (BIO 3899).
- 2008 - 2009     **Assistant Professor of Biology** (Non-tenure track), Seattle Pacific University  
Courses taught: Genetics Laboratory (BIO 3325), Biology Core Curriculum (BIO 2101, 2102, 2103), Introduction to Biology (BIO 1100).
- 2007 - 2008     **Lilly SERVE Teaching Postdoctoral Fellow**, Biology, Seattle Pacific University  
Courses taught: Core Curriculum (BIO 2101, 2102), Introduction to Biology (BIO 1100)
- 2002 - 2007     **Teaching Assistant**, University of California, Los Angeles  
Courses: Introductory Biology, Chemical Communication, Marine Ecology, Experimental Invertebrate Biology
- 2001 - 2002     **Research Technician**, Pepperdine University
- 2000 - 2001     **Laboratory Manager**, Pepperdine University
- 1998 - 2000     Teaching Assistant, Pepperdine University  
Courses: Introduction to Animal Behavior, Tropical Rainforest Ecology

## AWARDS, HONORS & GRANTS

- 2011     Principle Investigator, Murdock Charitable Trust, Life Sciences Research Grant, Paralytic Shellfish Toxins and the Sea Star - Mussel Interaction
- 2007     George Bartholomew Award for excellence in graduate research, University of California, Los Angeles
- 2007     Ecology and Evolutionary Biology Departmental Research Fellowship, University of California, Los Angeles

2007	Highlighted in <i>Journal of Experimental Biology: Inside</i> , a perspectives column
2006	Ecology and Evolutionary Biology Departmental Research Fellowship, University of California, Los Angeles
2006	Excellence in Teaching Award, University of California, Los Angeles

## PUBLICATIONS

### (Published)

- Ferrer, R. P.**, and R. K. Zimmer. 2012. Community ecology and the evolution of molecules of keystone significance. *Biological Bulletin*. Accepted. (In print October, 2012).
- Ferrer, R. P.**, and R.K. Zimmer. 2009. Chemical neuroecology and community dynamics. *Annals of the New York Academy of Sciences* 1170: 450-455. Abstract available online at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2009.03908.x/abstract>
- Zimmer, R. K., and **R. P. Ferrer**. 2007. Neuroecology, chemical defense and the keystone specie concept. *Biological Bulletin* 213: 208-225. Available online at: <http://www.biobull.org/content/213/3/208.full>
- Ferrer, R. P.**, and R. K. Zimmer. 2007. The scent of danger: Arginine as an olfactory cue of reduced predation risk. *Journal of Experimental Biology* 210: 1768-1775. Available online at: <http://jeb.biologists.org/content/210/10/1768.full>
- Ferrer, R. P.**, and R. K. Zimmer. 2007. Chemosensory reception, behavioral expression, and ecological interactions at multiple trophic levels. *Journal of Experimental Biology* 210: 1776-1785. Available online at: <http://jeb.biologists.org/content/210/10/1776.full>
- Han, B. A.\*, L. B. Kats, R. C. Pommerening\*, **R. P. Ferrer**, M. Murry-Ewers, and A. R. Blaustein. 2007. Behavioral avoidance of ultraviolet-B radiation by two species of Neotropical poisondart frogs. *Biotropica* 39: 433-435. Abstract available online at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1744-7429.2007.00268.x/abstract>
- Zimmer, R. K., D. W. Schar, **R. P. Ferrer**, P. J. Krug, L. B. Kats, and W. C. Michel. 2006. The scent of danger: Tetrodotoxin as an olfactory cue of predation risk. *Ecological Monographs* 76: 585-600. Available online at: <http://www.jstor.org/stable/27646063>
- Kats, L. B., and **R. P. Ferrer**. 2003. Alien predators and amphibian declines: Review of two decades of science and the transition to conservation. *Diversity & Distributions* 9, 99-110. Abstract available at: <http://onlinelibrary.wiley.com/doi/10.1046/j.1472-4642.2003.00013.x/abstract>

### (In review)

- Ferrer, R. P.**, and R. K. Zimmer. Molecules of keystone significance: Critical agents in ecology and resource management. Submitted to *BioScience*.

### (In preparation)

- Ferrer, R. P.**, and Zimmer, R. K. Spatial subsidies of plant litter emit chemical cues that drive carnivory. For submission to *Ecology*.
- Ferrer, R. P.**, T. M. Neill\*, and M. R. Friesen\*. In preparation. Differences in cannibalism between sister species and the evolution of anti-predator behaviors. For submission to *Animal Behaviour*.
- Ferrer, R. P.**, L. E. Larsen\*, E. T. Lunsford\*, A. N. Cutting\*, M. M. Moran\*, and K. M. Pierce. In preparation. Paralytic shellfish toxins and the *Pisaster - Mytilus* interaction. For submission to *Marine Biology*.
- E. G. Mattiasen\*, G. Bucciarelli, S. J. Foust, S. J. Thompson, S. J. Griswold, E. C. Gurrola, **R. P. Ferrer**, and L. B. Kats. In preparation. Response of leaf-cutting ants *Atta cephalotes* to predator chemical cues. For submission to *International Journal of Tropical Biology and Conservation*.

\* Denotes undergraduate.

## ORAL AND POSTER PRESENTATIONS

- 2012 Ferrer, R. P. (Feb 2012) Paralytic toxins and the *Pisaster-Mytilus* interaction. Ocean Sciences International Meeting, Salt Lake City, UT. (ORAL)
- 2010 Ferrer, R. P., and R. K. Zimmer. (Jan 2010) Community ecology, evolution, and molecules of keystone significance. Annual Meeting for the Society of Integrative and Comparative Biology, Seattle, WA. (ORAL)
- 2008 Ferrer, R. P., and R. K. Zimmer. (July 2008) Neuroecology, chemical defense, and the keystone concept. International Symposium on Olfaction and Taste, San Francisco, CA. (ORAL)
- 2007 Ferrer, R. P., and R. K. Zimmer. (Jan 2007) The consequences of olfaction for predation in a natural stream habitat. Annual Meeting for the Society of Integrative and Comparative Biology, Phoenix, AZ. (ORAL)
- 2006 Ferrer, R. P. (May 2006) The California newt: Natural history and chemically-mediated interactions. Meeting of the Southern California Academy of Sciences, Malibu, CA. (ORAL)

## STUDENT RESEARCH PRESENTATIONS

- 2012 Cutting, A. N.\*, and R. P. Ferrer. (Oct 2012) Shorebird foraging behaviors in the wake of harmful algal blooms. Murdock Charitable Trust Undergraduate Research Conference, Walla Walla, WA.
- Moran, M. M.\*, R. P. Ferrer, and K. M. Pierce. (Oct 2012) Quantitative analysis of paralytic shellfish toxins in mussel tissue using HPLC and fluorescence detection. Murdock Charitable Trust Undergraduate Research Conference, Walla Walla, WA.
- Larsen, L. E.\*, E. T. Lunsford\*, and R. P. Ferrer. (May 2012) The effects of paralytic shellfish toxins on *Pisaster ochraceus* behavior and physiology. Erickson Undergraduate Research Conference, Seattle, WA.
- Lunsford, E. T.\*, S. M. Maloney\*, and R. P. Ferrer. (May 2012) The effects of *Ulvaria* dopamine on barnacle feeding behavior. Erickson Undergraduate Research Conference, Seattle, WA.
- Sunde, B. S.\*, L. E. Larsen\*, and R. P. Ferrer. (May 2012). The indirect effects of algal dopamine on an intertidal predator-prey interaction. Erickson Undergraduate Research Conference, Seattle, WA.
- 2011 Larsen, L. E.\*, K. M. Pierce, and R. P. Ferrer. (Nov 2011) Quantifying saxitoxin in shellfish using prechromatographic oxidation and liquid chromatography with fluorescence detection. Murdock Charitable Trust Undergraduate Research Conference, Seattle, WA.
- Lunsford, E. T.\*, L. E. Larsen\*, and R. P. Ferrer. (Nov 2011) The effects of PSTs on the *Pisaster - Mytilus* interaction. Murdock Charitable Trust Undergraduate Research Conference, Seattle, WA.
- Lunsford, E. T.\*, and R. P. Ferrer. (Aug 2011) *Pisaster ochraceus* feeding behavior and response to paralytic shellfish poisons. Seattle Pacific University Summer Research Institute, Seattle, WA
- Larsen, L. E.\*, R. P. Ferrer, and K. M. Pierce. (May 2011) The effects of harmful algal blooms on *Pisaster ochraceus* behavior and physiology. Seattle Pacific University Summer Research Institute, Seattle, WA.
- 2010 Brossoit, A. N.\*, K. L. Konigsfeld\*, and R. P. Ferrer. (May 2010) Saxitoxin (STX) exposure history and byssus thread physiology in Puget Sound blue mussels. Erickson Undergraduate Research Conference, Seattle, WA.

- Ferrer, R. P., and R. K. Zimmer (Apr 2006) Chemicals and ecology: Multitrophic predator-prey interactions mediated by chemistry. Annual Meeting of the Association for Chemoreception Sciences. Sarasota, Orlando, FL. (ORAL)
- Ferrer, R. P., and R. K. Zimmer (Jan 2006) When prey becomes predator: an ontogenetic shift in the role of olfaction. Annual Meeting for the Society of Integrative and Comparative Biology, Orlando, FL. (ORAL)
- 2005 Ferrer, R. P., and R. K. Zimmer. (Apr 2005) Arginine: A potent prey attractant to predatory newts in mountain streams. Annual Meeting of Association for the Chemoreception Sciences, Sarasota, FL. (POSTER)
- Ferrer, R. P., and R. K. Zimmer. (May 2005) Arginine: A potent prey attractant to predatory newts in mountain streams. Annual Meeting of the North American Benthological Society, New Orleans, LA. (ORAL)

#### PREVIOUS UNDERGRADUATE RESEARCHERS AND ADVISEES

2012	Erley, Christopher	(PPHS advisee)	Attending <b>XXXXXXXXXXXXX</b>
	Lunsford, Elias	(advisee, researcher)	Conducting research at University of Washington
2011	Melton, Myles	(PPHS advisee)	Attending <b>Cornell Medical School</b>
	Higgins, Sean	(PPHS advisee)	Attending University of Virginia Medical School
	Davies, Luke	(PPHS advisee)	Attending <b>University of Washington School of Public Health</b>
2009	Brossoit, Alisa	(researcher)	Attending Washington State University School of Veterinary Medicine
2008	Friesen, Megan	(researcher)	Attending University of Auckland, Ph.D. Program in Ecology

#### GUEST LECTURES

2011	Aquatic Ecology, Ecology, Seattle Pacific University, Seattle, WA.
2010	Population Genetics, General Biology, Point Loma Nazarene University, Point Loma, CA. Amphibian Biology, Vertebrate Diversity, Seattle Pacific University, Seattle, WA.
2009	Amphibian Biology, Vertebrate Diversity, Seattle Pacific University, Seattle, WA.
2008	Chemical Ecology, Ecology, Seattle Pacific University, Seattle, WA.
2007	Chemistry and community ecology, Biology Symposium, Pepperdine University, Malibu, CA.
2006	Ecology and Biodiversity, University of California, Los Angeles, CA. Natural History of Vertebrates, Pepperdine University, Malibu, CA.
2005	Introduction to Ecology, Pepperdine University, Malibu, CA.
2001	Biology of Plants, Pepperdine University, Malibu, CA.
2000	Tropical Rainforest Ecology, Pepperdine University, La Selva Biological Reserve, Costa Rica.

#### SERVICE TO PROFESSION

2012	Conference session chair, Ocean Sciences International Meeting, Salt Lake City, UT. Reviewer for <i>Conservation Biology</i>
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- 2011 Reviewer for *Hydrobiologia*
- 2010 Reviewer for National Science Foundation (3)  
Reviewer for *Conservation Biology*  
Consultant for *National Geographic* documentary on Amazonian poison frogs
- 2009 Reviewer for *Oecologia*  
Reviewer for *Hydrobiologia* (2)
- 2008 Reviewer for *Conservation Biology* (3)
- 2007 Reviewer for *Journal of Experimental Marine Biology and Ecology*
- 2005 Conference session chair, Annual Meeting for the North American Benthological Society, New Orleans, LA.

## **COMMITTEE SERVICE**

- 2011- Present Intercollegiate Athletics Committee

## **SOCIETY MEMBERSHIPS**

- Association for Chemoreception Sciences
- Society of Integrative and Comparative Biology

## **TEACHING DEVELOPMENT**

- 2008-2009 Undergraduate Research Development Seminar, Seattle Pacific University  
Education and Globalization Seminar, Seattle Pacific University  
Designing and implementing inquiry-based learning curriculum, Seattle Pacific University
- 2007-2008 New Faculty Seminar, Seattle Pacific University
- 2005-2006 Experimental Life Sciences Curriculum and Student Workshops, University of California, Los Angeles
- 2004-2005 P.E.E.R.S. (Program for Excellence in Education and Research in the Sciences), University of California, Los Angeles
- 2001-2002 Community education and conservation projects of endangered leatherback sea turtles – Las Baulas National Reserve, Costa Rica