

Casey P. terHorst

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California State University, Northridge
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EDUCATION AND PROFESSIONAL EXPERIENCE:

Associate Professor California State University, Northridge	2018-present
Assistant Professor California State University, Northridge	2013-2018
Post-doctoral Research Associate Kellogg Biological Station, Michigan State University (Advisor: Jennifer Lau)	2010-2013
Ph.D., Biological Science Florida State University (Co-Advisors: Thomas Miller and Don Levitan)	2004-2010
M.S., Biological Sciences California State University, Northridge (Advisor: Steve Dudgeon)	2001-2004
B.A., History University of Southern California	1994-1998

FUNDING/AWARDS:

National Science Foundation, Div. Environmental Biology (\$565,000) RUI: Limits to the effects of contemporary evolution on communities	2018-2021
National Science Foundation, Div. Ocean Sciences (\$873,062) RUI: Collaborative Research: Genetic variation as a driver of host and symbiont response to increased temperature on coral reefs	2016-2020
National Science Foundation, Div. Mathematical Sciences (\$594,760) Collaborative Research: Trait Evolution and the Stability of Ecological Communities	2013-2017

PEER-REVIEWED PUBLICATIONS: 15 as first author, *indicates student author (12)

Manuscripts in review

- (38) *Pelosi, J., *K.M. Eaton, S. Mychajliw, **C.P. terHorst**, and M.A. Coffroth. (in review). Thermal tolerance in an octocoral symbiont and the implications for Caribbean corals through *in hospite* studies. *Coral Reefs*
- (37) Khadempour, L., *L. Rivas-Quijano, and **C.P. terHorst**. (in review). Prey identity affects fitness of a generalist consumer in a brown food web. *American Naturalist*

Published Manuscripts

- (36) *Scott, Z. R. and **C. P. terHorst**. 2020. The effect of an invasive foundation species on diversity is due to increased habitat availability. *Journal of Experimental Marine Biology and Ecology* 528: 151384.
- (35) Lau, J.A. and **C.P. terHorst**, 2019. Evolutionary responses to global change in species-rich communities. *Annals of the New York Academy of Sciences* 1476: 43-58.
- (34) *Scott, Z. R. and **C. P. terHorst**. 2019. The effect of an invasive bryozoan on community diversity and structure varies across two locations. *Community Ecology* 20: 258-265.
- (33) *Bayliss, S. L. J., *Scott, Z. R., Coffroth, M. A., and **C. P. terHorst**. 2019. Genetic variation in

- Breviolum antillogorgium*, a coral reef symbiont, in response to temperature and nutrients. *Ecology & Evolution* 9:2803-2813.
- (32) LaFleur, M. Reuter, K., and **C. P. terHorst**. 2019. Illegal trade of wild ring-tailed lemurs, an endangered species, within Madagascar. *Folia Primatol* DOI: 10.1159/000496970.
- (31) *Canepa, J. A., **terHorst, C. P.** 2019. Phenotypic variation across the range of the lined shore crab *Pachygrapsus crassipes* Randall, 1840 (Decapoda, Grapsiidae). *Crustaceana* 92:385-396.
- (30) *Fleischer, S., **terHorst, C. P.**, and J. Li. 2018. Pick your trade-offs wisely: Predator-prey eco-evo dynamics are qualitatively different under different trade-offs. *Journal of Theoretical Biology* 456: 201-212.
- (29) **terHorst, C. P.** *C. Wirth, J. A. Lau. 2018. Genetic variation in mutualism and competitive ability in an invasive legume. *Oecologia* 188: 159-171.
- (28) *Getman-Pickering, Z., **C. P. terHorst**, S. Magnoli, and J. A. Lau. 2018. Evolution of increased size during invasion does not result in increased competitive ability. *Oecologia* 188: 203-212.
- (27) **terHorst, C. P.**, P. C. Zee, K. D. Heath, T. E. Miller, A. I. Pastore, S. Patel, S. J. Schreiber, M. J. Wade, and M. R. Walsh. 2018. Evolution in a community context. *American Naturalist* 191:368-380.
- (26) Schreiber, S. J., S. Patel, **C. P. terHorst**. 2018. Evolution as a coexistence mechanism: does genetic architecture matter? *American Naturalist* 2018: 407-420.
- (25) **terHorst, C.P.**, Lau, J.A., Conner, J.K. 2017. Quantifying non-additive selection caused by indirect ecological effects: Reply to Comment. *Ecology* 98: 1171-1175
- (24) *Holdridge, E. M., Flores, G. E. **terHorst, C. P.** 2017. Predator trait evolution alters prey community composition. *Ecosphere* 8: e01803
- (23) *Bayliss, S. L. J., **C. P. terHorst**, and J. A. Lau. 2017. Testing genotypic variation of an invasive plant species in response to soil disturbance and herbivory. *Oecologia* 183: 1135-1141
- (22) **terHorst, C. P.** and P. Zee. 2016. Eco-evolutionary dynamics in plant-soil feedbacks. *Functional Ecology* 30: 1062-1072.
- (21) *Holdridge, E. M., Cuellar-Gempeler, C., and **C. P. terHorst**. 2016. A shift from exploitation to interference competition with increasing density affects population and community dynamics. *Ecology and Evolution* 6: 5333-5341.
- (20) **terHorst, C. P.**, J. A. Lau, I. A. Cooper, K. R. Keller, R. J. LaRosa, A. M. Royer, E. H. Schultheis, T. Suwa, and J. K. Conner. 2015. Quantifying non-additive selection caused by indirect ecological effects. *Ecology* 96: 2360-2369.
- (19) Lau, J.A. and **C.P. terHorst**. 2015. Causes and consequences of failed adaptation to biological invasions: the role of ecological constraints. *Molecular Ecology* 24: 1987-1998.
- (18) **terHorst, C.P.** and J.A. Lau. 2014. Genetic variation in invasive species response to direct and indirect species interactions. *Biological Invasions* 17: 651-659.
- (17) **terHorst, C.P.**, J.A. Lau, and J.T. Lennon. 2014. The relative importance of rapid evolution for plant-microbe interactions depends on ecological context. *Proceedings of the Royal Society B* 281: 20140028.
- (16) Miller, T.E., E.R. Moran, and **C.P. terHorst**. 2014. Rethinking niche evolution: experiments with natural populations of protozoa. *American Naturalist* 184: 277-283.
- (15) **terHorst, C. P.** and J. A. Lau. 2012. Direct and indirect transgenerational effects alter plant-herbivore interactions. *Evolutionary Ecology* 26: 1469-1480.
- (14) Miller, T. E. and **C. P. terHorst**. 2012. Testing successional hypotheses of stability, heterogeneity, and diversity in pitcher-plant inquiline communities. *Oecologia* 170: 243-251.
- (13) **terHorst, C. P.** 2012. Context-dependent orientation cues in an intertidal amphipod. *Marine and Freshwater Behaviour and Physiology* 45: 45-50.
- (12) Miller, T.E. and **C.P. terHorst**. 2012. Indirect effects in communities and ecosystems. *Oxford Bibliographies in Ecology*. Ed. David Gibson. New York: Oxford University Press. <http://www.oxfordbibliographies.com/obo/page/ecology>

- (11) **terHorst, C. P.** 2011. Experimental evolution of protozoan traits in response to interspecific competition. *Journal of Evolutionary Biology* 24: 36-46.
- (10) **terHorst, C.P.**, T.E. Miller, and E. Powell. 2010. When can competition for resources lead to ecological equivalence? *Evolutionary Ecology Research* 12: 843-854.
- (9) **terHorst, C. P.** 2010. Evolution in response to direct and indirect effects in pitcher plant inquiline communities. *The American Naturalist* 176: 675-685.
- (8) **terHorst, C.P.**, T.E. Miller and D.R. Levitan. 2010. Evolution of prey in ecological time reduces the effect size of predators in experimental microcosms. *Ecology* 91: 629-636.
- (7) Miller, T. E., **C.P. terHorst**, and J. H. Burns. 2009. The ghost of competition present. *The American Naturalist* 173: 347-353.
- (6) **terHorst, C.P.** and S.R. Dudgeon. 2009. Beyond the patch: disturbance affects species abundances in the surrounding matrix community. *Journal of Experimental Marine Biology and Ecology* 370: 120-126.
- (5) Burns, J.H., P. Munguia, B. Nomann, S. Braun, **C.P. terHorst**, and T.E. Miller. 2008. Vegetative morphology and trait correlations in 54 species of Commelinaceae. *Botanical Journal of the Linnean Society* 158: 257-268.
- (4) **terHorst, C.P.** and P. Munguia. 2008. Measuring ecosystem function: consequences arising from variation in the biomass-productivity relationship. *Community Ecology* 9: 36-41.
- (3) Levitan, D.R., **C.P. terHorst** and N.D. Fogarty. 2007. The risk of polyspermy in three congeneric sea urchins and its implications for gametic incompatibility and reproductive isolation. *Evolution* 61: 2009-2016.
- (2) Hoekman, D., **C.P. terHorst**, A. Bauer, S. Braun, P. Gignac, R. Hopkins, S. Joshi, K. Laskis, N. Sanscrainte, J. Travis, and T. E. Miller. 2007. Oviposition decreased in response to enriched water: a field study of the pitcher-plant mosquito, *Wyeomyia smithii*. *Ecological Entomology* 32: 92-96.
- (1) Fierst, J.L., **C.P. terHorst**, J.E. Kubler, and S. R. Dudgeon. 2005. Fertilization success can drive patterns of phase dominance in complex life histories. *Journal of Phycology* 41:238-249.

NON-PEER-REVIEWED PUBLICATIONS:

- terHorst, C.P.** 2018. "Be Like Me" might be bad advice for students. *Rapid Ecology* blog, 10/15/2018.
- Ramirez, K.S., Berhe, A.A., Burt, J., Gil-Romera, G., Johnson, R.F., Koltz, A.M., Lacher, I., McGlynn, T., Nielsen, K.J., Schmidt, R., Simonis, J.L., **terHorst, C.P.**, and Tuff, K. 2018. The future of ecology is collaborative, inclusive, and deconstructs biases. *Nature Ecology & Evolution* 2: 200.
- terHorst, C.P.** 2018. The Avengers: Infinity War has an important ecological lesson. *Rapid Ecology* blog, 5/14/2018.
- terHorst, C.P.** 2018. Is 50:50 an appropriate null model for measuring gender bias? Ecologists should know better. *Rapid Ecology* blog, 3/19/2018.
- terHorst, C.P.** 2018. The irony of imposter syndrome. *Rapid Ecology* blog, 2/26/2018.

PRESENTATIONS:

Invited Speaker

- University of Fribourg: Ecology and evolution of protozoa-bacteria interactions in pitcher plants. July 2019.
- University of Arizona: Limits to eco-evo interactions: lessons from invasive plants and coral reefs. March 2018.
- Brigham Young University: Limits to eco-evo interactions: lessons from invasive plants and coral reefs. October 2018.
- University of Tennessee, Knoxville: The ecological players in the evolutionary theater: contemporary evolution in communities. February 2018.
- Regis University: What can ecology teach us about environmental issues? November 2017.

- University of California, Irvine: The ecological players in the evolutionary theater: contemporary evolution in communities. November 2016.
- University of Pennsylvania: Ecology is more than just a theater: effects of contemporary evolution on ecological interactions. October 2015.
- University of California, Davis: Context-dependency of eco-evo feedbacks. April 2015.
- University of California, Los Angeles: Evolution on contemporary time scales alters species interactions. October 2014.
- University of California, Riverside: Ecology and evolution interact to shape species interactions. March 2014.
- Rice University: Ecology and evolution interact to shape species interactions. March 2014.
- Mathematical Biosciences Institute: Rapid evolution of multiple species increases coexistence: insights from models and model systems. October 2013.
- Case Western Reserve University: Ecology and evolution interact to shape species interactions. January 2013.
- California State University, Northridge: Ecology and evolution interact to shape species interactions. December 2012.
- University of Memphis: Ecology and evolution interact to shape species interactions. November 2012.
- University of Kansas: Microbial species interactions in an eco-evolutionary framework. February 2012.
- University of California, Davis: Dynamics species interactions in an eco-evolutionary framework. February 2012.
- Bowling Green State University: Dynamic species interactions in an eco-evolutionary framework. February, 2012.
- University of Louisville: The evolution of species interactions in a community context. January, 2012.
- Kellogg Biological Station, Michigan State University: Evolution in a community context. October 2010.
- Florida State University: Not dead yet: indirect effects make community ecology relevant for ecological and evolutionary processes. October, 2009.
- Smithsonian Environmental Research Center: Rapid evolution in aquatic communities: the missing link between community ecology and evolution. March 2008.
- Florida State University: Evolutionary rates on ecological time scales. April 2007.

National and Regional Meetings (45 presentations since 2001; last seven years shown)

- terHorst, C.P., Brisson, C., Moffat, J., and M.A. Coffroth. Coral reef hosts reduce the potential for symbiont evolution in response to climate change. Part of Organized Oral Session on “Mutualists as Community Architects: A Trait-Based Approach” at the 105th meeting of the Ecological Society of America. Virtual meeting, August 2020
- terHorst, C.P., Brisson, C., Moffat J., and M.A. Coffroth. Silencing of symbiont trait differences inside hosts may prevent evolutionary rescue on coral reefs. Presented at the Joint Meeting of The American Society of Naturalists and Society for the Study of Evolution, Provide, RI, June 2019.
- terHorst, C.P., Brisson, C., and M.A. Coffroth. Not so different after all: Symbiont trait differences are muted inside hosts. Presented at the Benthic Ecology Meeting. St. Johns, Newfoundland, Canada.
- terHorst, C.P., Brisson, C., and M.A. Coffroth. Species interactions pose challenges for evolutionary rescue on coral reefs. Presented at the Western Society of Naturalists meeting. Tacoma, WA November 2018.
- terHorst, C.P., Brisson, C., and M.A. Coffroth. Can evolution rescue an important mutualism? Presented at the 103rd meeting of the Ecological Society of America. New Orleans, LA, August 2018.
- terHorst, C.P. Evolution to overcome biotic resistance to invasion is limited by multiple species interactions. Presented at the American Society of Naturalists, Pacific Grove, CA. January 2018.
- terHorst, C.P., Brisson, C., and M.A. Coffroth. Is evolutionary rescue a viable option for

- conservationists? Presented at the Western Society of Naturalists meeting. Pasadena, CA. November 2017.
- terHorst, C.P., Bayliss, S.L.J., Scott, Z.R., and M.A. Coffroth. Ecological and evolutionary consequences of symbiont genetic variation. Presented at the 102nd meeting of the Ecological Society of America. Portland, OR, August 2017.
- terHorst, C.P., Getman-Pickering, Z.L., Bayliss, S. L. J., Magnoli, S.M., Cammisa, N., and J.A. Lau. Contemporary evolution in invasive species in a community context. Presented at the Joint Meeting of The American Society of Naturalists and Society for the Study of Evolution, Portland, OR, June 2017.
- terHorst, C.P., S. Bayliss, M.D. Fowler, S. VonVreckin, Z. Scott, and M.A. Coffroth. Evolution to the rescue: symbiont evolution offers hope for corals. Presented at the Western Society of Naturalists meeting, Monterey, CA. November 2016.
- terHorst, C.P., S. Bayliss, M.D. Fowler, S. VonVreckin, Z. Scott, and M.A. Coffroth. Potential for evolutionary rescue via symbiont adaptation. 101st annual meeting of the Ecological Society of America. Fort Lauderdale, FL. August 2016.
- terHorst, C.P., S. Bayliss, M.D. Fowler, S. VonVreckin, Z. Scott, and M.A. Coffroth. Genetic variation in *Symbiodinium* traits: potential for evolutionary rescue via symbiont adaptation. International Coral Reef Symposium, Honolulu, HI. June 2016.
- terHorst, C.P., S. Bayliss, Z. Scott, and M.A. Coffroth. Evolutionary salvation: functional trait variation in *Symbiodinium*. Benthic Ecology Meetings, Portland, ME. March 2016
- terHorst, C.P. and M.A. Coffroth. Genetic variation in symbionts may allow coral reef species to adapt to global change. American Society of Naturalists, Pacific Grove, California. January 2016.
- terHorst, C.P., J.A. Lau, and J.T. Lennon. Plant evolution in response to drought alters the structure and function of soil microbial communities. 100th annual meeting of the Ecological Society of America, Baltimore, MD, August 2015.
- terHorst, C.P., J.A. Lau, and J.K. Conner. Indirect ecological effects drive non-additive selection on traits. Benthic Ecology Meetings, Quebec City, Quebec, March 2015.
- terHorst, C.P., J.A. Lau, and J.K. Conner. Indirect ecological effects drive non-additive selection on traits. Presented at the Western Society of Naturalists, Tacoma, Washington, November 2014.
- terHorst, C.P. et al. Indirect effects drive non-additive selection. Presented at the 99th annual meeting of the Ecological Society of America, Sacramento, California. August 2014.
- terHorst, C.P., J.T. Lennon, and J.A. Lau. The relative importance of rapid evolution depends on ecological context. Presented at American Society of Naturalists, Pacific Grove, California. January 2014.
- terHorst, C.P. and J.A. Lau. Genetic variation in invader response to direct and indirect species interactions. Presented at the Western Society of Naturalists, Oxnard, California. November 2013.
- terHorst, C.P., J.T. Lennon, and J.A. Lau. The relative importance of rapid evolution depends on ecological context. Presented at Ecological Society of America, Minneapolis, Minnesota. August 2013.
- terHorst, C.P., E. Miller, J.A. Lau. Dynamic ecological trade-offs can alter ecological experiments and evolutionary responses to selection. Presented at the Benthic Ecology Meeting, Savannah, Georgia. March, 2013.

ONGOING COLLABORATORS:

- Mary Alice Coffroth, University at Buffalo
- Catalina Cuellar-Gempeler, Humboldt State University
- Sarah Gray, University of Fribourg
- Lily Khadempour, Rutgers University
- Jen Lau, Indiana University
- Tom Miller, Florida State University

TEACHING:

Principles of Ecology (Biol427/427L/492H: lecture, lab, and field): Fall 2013, 2014, 2015, 2017, 2019

Principles of Biology I (Biol 106): Spring 2014, 2015, 2016, 2017, 2019, 2020

Seminar in Evolution (Biol 615F): Spring 2015, Fall 2019

Biometry (Biol 502, 502L): Fall 2016, 2018, 2020

Co-facilitator of Transforming STEM Learning (Faculty Learning Community), 2017, 2021

Co-facilitator of Effective Online Teaching Practices (Year-long credential program from the Association of College and University Educators) 2020-21

Associate Director, Teaching Assistant Fellowship Program, 2020-21

POST-DOCTORAL MENTEES (3):

Peter Zee. 2014-2017. Now Asst. Prof at University of Mississippi

Catalina Cuellar-Gempeler. 2016-2018. Now Asst. Prof at Humboldt State University.

Lily Khadempour. 2018-2020. Now Asst. Prof at Rutgers University

GRADUATE STUDENTS ADVISED (10):

Erica Holdridge, 2013-2015. Now in PhD program at Yale University.

Shannon Bayliss, 2013-2016. Now in PhD program at University of Tennessee

Nickie Cammisa, 2014-2017. Now in D. Env. Program at University of California, Los Angeles

Zoë Scott, 2014-2017. Marine biologist for the City of San Diego

James Canepa, 2015-2017. M.F.A. student at University of British Columbia

Melissa Kurman, 2015-2017. Program facilitator at FirstHand Science Center, Philadelphia

Chelsea Brisson, 2017-2020

Jennica Moffat, 2018-present

Carmen Hoffbeck, 2019-present

Gloria Arellano, 2020-present

UNDERGRADUATE STUDENTS ADVISED (21):

Elina Sharma (current biology undergraduate, CSUN)

Roksana Zare (current biology undergraduate, CSUN)

Emily Chea (current biology undergraduate, CSUN)

Leslie Rivas Quijano (now at LA Zoo)

Angela Vela (now MS Biology student, CSUN)

Aleena Hussain (graduated CSUN)

Alejandro Flores (graduated CSUN)

Emma Collosi (now M.S. Biology student, CSUN)

Leah Bandak (graduated CSUN)

Cameron Winbush (graduated CSUN)

Katie Wong (now in PA graduate program)

Sam Fleischer (now at JPL)

Michael Perez (graduated with M.A. from UC Santa Barbara)

Zoe Getman-Pickering (REU, Michigan State, now in PhD program at Cornell)

Julia Miller (REU, Michigan State, now in PhD program at Cornell)

Maddy Screnock (Florida State, graduated from P.A. school)

Elisabeth Hibner (graduated Florida State)

Nicole Hancock (graduated Florida State)

Jennifer Heinlein (graduated Florida State, Ph.D. student at Univ. Central Florida)

Lindsay Goldenberg (now a pharmacist)

Lindsay Meyerowitz (graduated Florida State)

SERVICE:

- Editor for *Oecologia*. 2018-present
- Organizer: American Society of Naturalists stand-alone meeting. Jan. 2020. Monterey, CA.
- Local Host and Organizer: Western Society of Naturalists annual meeting. Nov. 2017. Pasadena, CA.
- National Science Foundation Review Panel, January 2014, April 2015, October 2018, November 2019
- Reviewer for Foreign Governments: Agence Nationale de la Recherche (France), Research Grant Council of Hong Kong
- Reviewer for: American Journal of Botany, American Naturalist, BMC Evolutionary Biology, Ecology, Ecology Letters, Ecosphere, Evolution, Journal of Experimental Marine Biology and Ecology, Limnology & Oceanography, Marine Ecology Progress Series, Microbial Ecology, Nature, Oecologia, Oikos, PLOS One, PNAS, Proceedings of the Royal Society B

CSUN University Service:

- Graduate Studies Committee (2015-present), Chair (2017-present)
- Faculty Senate Representative (2017-present)
- Coordinator, Active Learning Ambassadors (2018-present)
- Data Champion (2017-2019)
- Faculty Scholar, Institutional Research, 2020-present
- College Liaison to Graduate Studies CSUNposium (2017-present)
- National Council of Research Administrators Peer Review, Office of Research and Sponsored Projects (2015)
- New Faculty Orientation Mentor, Office of Faculty Development (2014-present)
- Graduate Studies Workshop: Managing Stress in Graduate School (2019, 2020)
- Advancement to Graduate Education seminar: Health and Well-Being in Grad School (2019, 2020)

CSUN Biology Departmental Committees:

- Founding member of Diversity, Equity, and Inclusion Committee
- Marine Biology Faculty Search Committee
- Plant Evolutionary Biology Faculty Search Committee
- Computer Committee (chair), Vehicle, Webpage, and Graduate (interim) Committees
- Core Curriculum Action Group for Introductory Biology
- Advisor for Behavioral, Ecology, and Evolution Reading Group
- Thesis Committee Member (24): Juan Aragon y Trivasano, Gloria Arellano, Shannon Bayliss, Chelsea Brisson, Nicole Cammisa, James Canepa, Emma Collosi, Matthew Dickson, Jeffrey Esparza, Jack Girard, Andrea Haberkern, Carmen Hoffbeck, Erica Holdridge, Jacob Holmes, George Jarvis, Robyn Jensen, Carson Keller, Shaun Kehrmeyer, Melissa Kurman, Gillian Larson, Charlotte Messineo, Jennica Moffat, Lansing Perng, Zoë Scott
- External Thesis Reviewer (15): Jesse Bergmann, Brian Clark, Alexis Estrada, Nick Evensen, Parker House, Diana Jacinto, Erin Jaco, Edwin Leung, Lorna McFarlane, Erika Nava, Corrine Paterson, Ashley Potter, Cameron Pujdak, Michael Schram, Kathryn Scafidi, Jennifer Smolenski, Arien Widrick

REFERENCES:

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Mary Alice Coffroth
Professor, University at Buffalo
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