Nicholas P. Burnett, PhD

Department of Neurobiology, Physiology, & Behavior
University of California, Davis; 1 Shields Avenue, CA 95616

Email: burnettnp@gmail.com Website: www.nickburnettphd.com

SUMMARY OF QUALIFICATIONS

- PhD in Integrative Biology with 3 years of postdoctoral experience
- 17 peer-reviewed publications (15 as first or senior author, 1 in revision)
- Awarded ~ $360k in funding
- Teaching experience: 7 university courses as teaching assistant or guest lecturer
- Mentoring experience: 15 undergraduate students (4 resulting in publications)
- Commitment to diversity: involved in 7 diversity-focused committees and service groups, published 2 diversity-focused papers, conducted outreach to underserved schools, mentored students from underrepresented groups

RESEARCH AREA

Ecological biomechanics

POSTDOCTORAL TRAINING

2017 – Present Department of Neurobiology, Physiology, & Behavior
University of California, Davis
Advisor: Dr. Stacey Combes

EDUCATION

2012 – 2017 **PhD, Integrative Biology**
University of California, Berkeley
Advisor: Dr. Mimi Koehl

2008 – 2012 **BS, Biological Sciences**
University of South Carolina
Advisors: Dr. David Wethey, Dr. Brian Helmuth

AWARDS AND FELLOWSHIPS

2020 UC Davis Postdoctoral Scholar Association Travel Award ($400)
2019 UC Davis Open Access Publication Fund ($1,000)
2017 UC Berkeley Research Impact Initiative Open Access Publication Fund ($1,560)
2017 – 2019 NSF Postdoctoral Fellowship in Biology ($138,000)
2016 UC Berkeley, Integrative Biology Summary Research Fund ($1,750)
2014 Point Reyes Marine Science Fund ($1,000)
2013 – 2017 NSF Graduate Research Fellowship ($132,000)
2013 Phycological Society of America Croasdale Fellowship ($1,443)
2012 – 2014 NSF Interdisciplinary Graduate Education & Research Traineeship ($60,000)
2011 University of South Carolina, Magellan Scholars Research Award ($3,000)

PUBLICATIONS *Undergraduate mentee co-authors

17. **Burnett, N.P.**, E. Armstrong, R. Romero, C. Runzel*, R.L. Tanner (**in press**) Kelp morphology and herbivory are maintained across latitude despite geographic shift in kelp-wounding herbivores. *Biological Bulletin* Accepted April 20 2021.
16. **Burnett, N.P.**, M.A.R. Koehl (**in press**) Age affects the strain-rate dependence of mechanical properties of kelp tissues. *American Journal of Botany* Accepted January 7 2021.
15. **Burnett, N.P.**, E.E. King, M.K. Salcedo, R.L. Tanner, K. Wilsterman (**2020**) Conference scheduling undermines diversity efforts. *Nature Ecology & Evolution* 4: 1283-1284.
14. **Burnett, N.P.**, M.A. Badger, S.A. Combes (**2020**) Wind and obstacle motion affect honeybee flight strategies in cluttered environments. *Journal of Experimental Biology* 223: jeb222471.
    - Coverage by Slate Magazine – France (July 1, 2020)
    - Coverage by New York Times (June 26, 2020)
13. **Burnett, N.P.**, M.A.R. Koehl (**2020**) Thallus pruning does not enhance survival or growth of a wave-swept kelp. *Marine Biology* 167(52): 1-12.
12. Sirison, N.*, **N.P. Burnett** (**2020**) *Turbinaria ornata* (Phaeophyta) varies size and strength to maintain environmental safety factor across flow regimes. *Journal of Phycology* 56: 233-237.
11. Collins, C.L., **N.P. Burnett,** M.J. Ramsey, K. Wagner, M.L. Zippay (**2020**) Physiological responses to heat stress in an invasive mussel *Mytilus galloprovincialis* depend on tidal habitat. *Marine Environmental Research* 154: 104849.
10. **Burnett, N.P.,** S.A. Combes (**2019**) Post-doc interviews in the life sciences: An often-overlooked process that is susceptible to bias. *Integrative Organismal Biology* 1: 1-7.
9. **Burnett, N.P.**, G. Sarà (**2019**) Functional responses of intertidal bivalves to repeated sub-lethal, physical disturbances. *Marine Environmental Research* 147: 32-36.
8. **Burnett, N.P.**, M.A.R. Koehl (**2019**) Mechanical properties of the wave-swept kelp, *Egregia menziesii*, change with season, growth rate, and herbivore wounds. *Journal of Experimental Biology* 222: jeb.190595.
7. **Burnett, N.P.**, M.A.R. Koehl (**2018**) Knots and tangles weaken kelp fronds while increasing drag forces and epifauna on the kelp. *Journal of Experimental Marine Biology and Ecology* 508: 13-20.
6. **Burnett, N.P.**, A. Belk* (**2018**) Compressive strength of *Mytilus californianus* shell is time-dependent and can influence the potential foraging strategies of predators. *Marine Biology* 165: 42.
5. **Burnett, N.P.**, M.A.R. Koehl (**2017**) Pneumatocysts provide buoyancy with minimal effect on drag for kelp in wave-driven flow. *Journal of Experimental Marine Biology and Ecology* 497: 1-10.
4. Kothari, A.R.*, **N.P. Burnett** (**2017**) Herbivores alter plant-wind interactions by acting as a point mass on leaves and by removing leaf tissue. *Ecology and Evolution* 7: 6884-6893.
3. **Burnett, N.P.**, K.A. Villarta, G.A. Williams (**2014**) Rasping patterns of the high-shore limpet *Cellana grata*. *Journal of Molluscan Studies* 80: 456-459.
2. **Burnett, N.P.**, R. Seabra, M. de Pirro, D.S. Wethey, S. Woodin, B. Helmuth, M.L. Zippay, G. Sarà, C. Monaco, F.P. Lima (**2013**) An improved non-invasive method for measuring heartbeat of intertidal animals. *Limnology and Oceanography: Methods* 11 (2): 91-100.
1. Lima, F.P., **N.P. Burnett**, B. Helmuth, K. Aveni-Deforge, N. Kish, D.S. Wethey (**2011**) Monitoring the intertidal environment with bio-mimetic devices. Chapter 18 in *Advances in Biomimetics* ISBN 978-953-7619-X-X. INTECH publishing.

PUBICATIONS IN REVISION

1. **Burnett, N.P.,** M.A. Badger, S.A. Combes. Wind condition and route choice affect performance of honeybees flying through versus over an obstacle field.

INVITED PRESENTATIONS

2019 Biomechanics and ecology of organisms in habitats with challenging flow conditions. Biology Colloquium Fall 2019. Sonoma State University.

2019 Physical and biological factors in the environment affect the form of kelp. GFS follow on: Mathematic of form in active and inactive media. Isaac New Institute for Mathematical Sciences. University of Cambridge, Cambridge, UK.

CONTRIBUTED PRESENTATIONS

*Undergraduate presenter

2020 **Burnett, N.P.**, M.A. Badger, S.A. Combes. Wind and canopy height affect honey bee flight performance in cluttered environments. Society for Integrative & Comparative Biology (SICB). Oral.

2019 **Burnett, N.P.**, M.A. Badger, S.A. Combes. Flight planning on the wing: Honeybees assess obstacle motion from afar before deciding to land on or pass through wind-blown clutter. SICB. Oral.

2018 **Burnett, N.P.**, M.A.R. Koehl. The strength of kelp tissue depends on age, season, and herbivore activity. SICB. Oral.

2017 **Burnett, N.P.**, M.A.R. Koehl. Kelp epifauna depend on and affect kelp structure and growth. SICB. Oral.

2017 **Burnett, N.P.**, M.A.R. Koehl. Knots and tangles weaken kelp fronds while increasing drag forces and herbivore loads on the kelp. Society for Experimental Biology (SEB). Oral.

2016 Kothari, A.R.*, **N.P. Burnett**. Effect of herbivore damage on broad leaf motion in wind. SICB. Poster.

2016 **Burnett, N.P.**, M.A.R. Koehl. Effects of herbivory on the biomechanics of kelp in wave-swept environments. SICB. Oral.

2016 **Burnett, N.P.**, M.A.R. Koehl. The strength of kelp tissue depends on age, season, and herbivore activity. Western Society of Naturalists (WSN). Oral.

2015 **Burnett, N.P.**, A.R. Kothari. Effect of herbivore damage on broad leaf motion in wind. American Physical Society Division of Fluid Dynamics, Oral.

2015 **Burnett, N.P.**. Growth responses of the kelp *Egregia menziesii* to damage from different types of herbivores. SICB. Poster.

2014 **Burnett, N.P.** Effects of floats on the movement by and water velocities experienced by flexible seaweeds. SEB. Oral.

2014 **Burnett, N.P.** The effects of floats on the movement of *Egregia menziesii*. SICB. Oral.

CONTRIBUTED PRESENTATIONS (continued)

2013 **Burnett, N.P.**, K.A. Villarta, B. Helmuth, G.A. Williams. Feeding rates and their implications for energy budgets of tropical limpets. SICB. Oral.

2012 **Burnett, N.P.**, M.L Zippay, B. Helmuth. Cardiac responses of two species of intertidal bivalve mollusks to near-lethal body temperatures. Benthic Ecology Meetings (BEM). Oral.

2012 **Burnett, N.P.**, K.A. Villarta, B. Helmuth, G.A. Williams. Feeding rates and their implications for energy budgets of tropical limpets. WSN. Oral.

2012 **Burnett, N.P.**, M.L. Zippay, B. Helmuth. Effects of heating rate in air on the cardiac responses of intertidal mussels. Climate Change and Intertidal Communities Workshop, Xiamen, China. Oral.

2012 **Burnett, N.P.**, D.S. Wethey, M.L. Zippay, B. Helmuth, F.P. Lima. Sensibly sensing cardiac activity of intertidal animals. University of South Carolina Discovery Day. Poster.

2011 Burge E.J., **N.P. Burnett**, D.M. DeLorenzo, E.J. Fedewa. *MarSci:* online journal for undergraduate research in the marine and aquatic sciences. Coastal and Estuarine Research Federation. Poster.

2011 **Burnett, N.P.**, F.P. Lima, D.S. Wethey. Biomimetic desiccation loggers for intertidal mollusks. International Temperature Reefs Symposium, Plymouth UK. Poster.

2011 **Burnett, N.P.**, F.P. Lima, D.S. Wethey. Biomimetic desiccation loggers for intertidal mollusks. Sensor Development for the Study of Global Climate Change in Intertidal Ecosystems. Oral.

2011 **Burnett, N.P.**, F.P. Lima, D.S. Wethey. Biomimetic desiccation loggers for intertidal mollusks. SICB. Poster.

2010 **Burnett, N.P.**, D.S. Wethey**.** A biomimetic data logger to estimate soft tissue desiccation in intertidal bivalve mollusks. BEM. Poster.

- Received Best Student Presentation Award.

PRESS COVERAGE

2020 Slate Magazine – France (July 1, 2020). "Comment font les abeilles pour ne jamais se prendre d'obstacles" by Mathieu Barrère. Link: http://www.slate.fr/story/192189/comment-abeilles-voler-eviter-obstacles-air-nature

2020 New York Times (June 26, 2020) "How Bees Avoid Bumping Into Nature's Obstacle Course" by Cara Giaimo. Link: https://www.nytimes.com/2020/06/26/science/bees-obstacles-collisions.html

2016 The Graduates, KALX 90.7 FM Radio Interview (September 27, 2016) "Biomechanics of Kelp" by Tesla Monson.

2016 *Marin Independent Journal* (December 29, 2016) "Marin kelp plays key role in marine environment" by Mark Prado. Link: http://www.marinij.com/article/NO/20161229/NEWS/161229816

TEACHING EXPERIENCE

Spring – Fall 2020	Curriculum development, "DIY Biomechanics Experiments" Undergraduate biomechanics course, UC Davis Instructor: Dr. Stacey A. Combes
Fall 2018, 2020	Guest lecture, "Biomechanics and Climate Change" Environmental Physiology, Sonoma State University Instructor: Dr. Mackenzie Zippay
Fall 2018	Guest lecture, "Animal Communication" Animal Behavior, UC Davis Instructor: Dr. Stacey A. Combes
Spring 2017	Co-Instructor, "R for Beginners" Graduate workshop, UC Berkeley
Fall 2016	Instructor, "R for Beginners" Graduate workshop, Sonoma State University
Fall 2016	Graduate Student Instructor, discussion section instructor Bio-Inspired Design, UC Berkeley Instructor: Dr. Robert Full
Fall 2013, Fall 2014	Graduate Student Instructor, discussion section instructor Oceans, UC Berkeley Instructor: Dr. Jim Bishop

UNDERGRADUATE STUDENTS MENTORED

*work published

2014	Emma Chen, UC Berkeley; Behavior of snails on leaves in wind
2014 – 2016	*Adit Kothari, UC Berkeley; Effects of herbivory on leaf-wind interactions
2015	Katelyn Horton, UC Berkeley; Herbivore-kelp dynamics in wave-swept habitats
2015	Reina Carissa, UC Berkeley; Herbivore-kelp dynamics in wave-swept habitats
2015	Wenhao Liao, UC Berkeley; Fluid-structure interactions of knotted fibers
2015 – 2016	Charlotte Runzel, UC Berkeley; Herbivore-kelp dynamics in wave-swept habitats
2015 – 2017	*Anna Belk, UC Berkeley; Effects of compression rate on mussel shell strength
2016	Yandi Wu, UC Berkeley; Effects of wind on hair tangling
2016 – 2017	Blair Conklin, UC Berkeley; Temporal patterns in beach sedimentation
2017 – 2018	Kathleen Pugh, UC Davis; Flight behavior of honeybees in wind
2019	*Nannaphat Sirison, UC Berkeley; Biomechanics of tropical seaweed
2020	Kelly Fong, UC Davis; Developing a method to measure load-lifting in bees
2020	Emma Griffis, UC Davis; Developing a method to measure load-lifting in bees
2020	Clarissa Serna, UC Davis; Behavioral responses of bees to flight space size
2020	Emily Keliher, UC Davis; Load lifting ability of blue orchard bees

OUTREACH AND SERVICE

2020 – Present	Member, Working Group for Broadening Participation in Academia
2020 – Present	Postdoctoral Member, UC Davis College of Biological Sciences DEI Committee
2020 – Present	Postdoctoral Member, UC Davis Graduate Studies Anti-Racist Working Group
2020 – Present	Member, Advisory Sub-Committee for Demographics Survey Society for Integrative & Comparative Biology

OUTREACH AND SERVICE (continued)

2019	Member, Master's Degree Defense Committee Sonoma State University
2017 – Present	Postdoctoral Member, Broadening Participation Committee Society for Integrative & Comparative Biology
2016	Radio interview on "Biomechanics of Kelp", The Graduates, Radio show. KALX 90.7 FM, Host: Tesla Monson
2012 – 2017	Volunteer, Bay Area Scientists in Schools, Oakland, CA
2012 – 2015	Co-Organizer, Women in Science, UC Berkeley
2010 – 2012	Magellan Ambassador, Office of Undergraduate Research University of South Carolina

EDITORIAL AND PEER-REVIEWING EXPERIENCE

2021	Assistant Editor for *Integrative & Comparative Biology*
2020 – 2021	Guest Associate Editor for *Integrative & Comparative Biology*
2020	*Ad hoc* reviewer for National Science Foundation

Peer-reviewing history:

Acta Oecologica
Animal Behaviour
Apidologie
Biology Letters
Frontiers Ecology and Evolution
Integrative Organismal Biology
Journal of Experimental Biology
Journal of Phycology
Limnology and Oceanography
Marine Ecology Progress Series
Marine Environmental Research
New Phytologist

COMMITMENTS TO DIVERSITY IN ACADEMIA

1. Research:
   - Publications
     - **Burnett, N.P.**, E.E. King, M.K. Salcedo, R.L. Tanner, K. Wilsterman (**2020**) Conference scheduling undermines diversity efforts. *Nature Ecology & Evolution* 4: 1283-1284.
     - **Burnett, N.P.,** S.A. Combes (**2019**) Post-doc interviews in the life sciences: An often-overlooked process that is susceptible to bias. *Integrative Organismal Biology* 1: 1-7.
   - Asking Different Questions Program, UC Davis Feminist Research Institute (2020)
     - Training program to conduct DEI research responsibly and respectfully.
2. Diversity-focused committees and service groups:
   - Working Group for Broadening Participation in Academia (2020 – Present)
     - Group dedicated to identifying, analyzing, and solving institutional practices that impede justice, equity, diversity, and inclusivity in academia.
   - UC Davis College of Biological Sciences DEI Committee (2020 – Present)
     - Group dedicated to establishing goals, guidelines, and actions to improve DEI within the College of Biological Sciences

COMMITMENTS TO DIVERSITY IN ACADEMIA (continued)

- UC Davis Graduate Studies Anti-Racist Working Group (2020 – Present)
    - Group dedicated to establishing goals, guidelines, and actions to improve DEI at UC Davis through recruitment and retention.
- Advisory Sub-Committee for Demographics Survey (2020)
    - Committee within the Society for Integrative & Comparative Biology to assess the impact of an online conference on SICB's diversity and inclusion.
- Broadening Participation Committee (2017 – Present)
    - Committee within the Society for Integrative & Comparative Biology that aims to increase the diversity, equity, and inclusivity of SICB's annual meetings.
- Women in Science, UC Berkeley (2012 – 2015)
    - Professional group promoting women's issues in science
- Bay Area Scientists in Schools, Oakland, CA (2012 – 2017)
    - Outreach group giving science lessons in underserved schools

3. Mentoring of students from underrepresented groups (URG) in science
    - Undergraduate URGs mentored in research apprenticeships
    - Graduate students mentored in peer-mentoring networks at SICB meetings