

# PETER D. ROOPNARINE

## PERSONAL INFORMATION

*Born in United Kingdom, 15 May 1964*

*email* [proopnarine@calacademy.org](mailto:proopnarine@calacademy.org)

*website* <https://www.calacademy.org/staff/ibss/invertebrate-zoology-and-geology/peter-roopnarine>

## RESEARCH PROFILE

Earth systems and global change scientist interested in the dynamics, evolution and modeling of ancient and modern ecosystems.

## EDUCATION

*1989-1994* The University of California Davis

*Ph.D. Geology*

Dissertation title: "Systematics, Biogeography and Extinction of Chionine Bivalves in the Neogene of Tropical America." Advisor: Dr. Geerat Vermeij.

*1985-1988* Nova Southeastern University, Florida

*Masters of Science,  
Oceanography*

Thesis title: "A geometrical analysis of shell morphology in the *Nodilittorina ziczac* (Gastropoda: Prosobranchia) species-complex." Advisors: Drs. Nathaniel Apter & Patricia Blackwelder.

*1980-1984* Mount Allison University, Canada

*Bachelors of  
Science, Biology*

Thesis title: "The initiation and histology of fission in the fissiparous sea-star *Stephanasterias albula*." Advisor: Dr. Philip Mladenov.

## CURRENT APPOINTMENTS

*1999-Present* Curator, CALIFORNIA ACADEMY OF SCIENCES

*California  
Academy of  
Sciences*

Curator of Geology and Paleontology.

*2005-present* Research Associate, UNIVERSITY OF CALIFORNIA  
BERKELEY

*University of  
California,  
Berkeley*

Museum Research Associate of the University of California Museum of Paleontology.

*2017-present* Visiting Professor, CHINA UNIVERSITY OF  
GEOSCIENCES

*China University  
of Geosciences*

Visiting Professor in the State Key Laboratory of Biogeology and Environmental Geology.

*2001-present* Research Professor, SAN FRANCISCO STATE  
UNIVERSITY

*San Francisco  
State University*

Research and graduate professor in the Department of Biology.

2001-present      Adjunct Professor, SAN FRANCISCO STATE  
UNIVERSITY

*San Francisco  
State University*

Adjunct and graduate professor in the Department of Geosciences.

#### HONOURS AND AWARDS

2023              Fellow

*Paleontological  
Society*

Elected a Fellow of the Paleontological Society.

2021              Fellow

*Geological Society  
of America*

Elected a Fellow of the Geological Society of America.

2020              Full Member

*Sigma Xi*

Elected to Full Membership in Sigma Xi, the Scientific Research Honor Society.

2015              Featured Researcher

*STEPPE*

Featured Researcher of the STEPPE (Sedimentary geology, Time, Environment, Paleontology, Paleoclimate, and Energy) consortium of the Geological Society of America, the Paleontological Society, and the Society for Sedimentary Geology. Supported by the National Science Foundation.

2013              Featured Lecturer

*Think Evolution V*

Featured Lecturer for Think Evolution, a summer institute for science teachers. Sponsored by the University of California Museum of Paleontology, in partnership with the National Center for Science Education, the Beacon Center for the Study of Evolution in Action, the California Academy of Sciences, and the Howard Hughes Medical Institute.

2009              Featured Scientist

*Year of Science*

Featured Scientist for the Year of Science, 2009. sponsored by the Coalition for the Public Understanding of Science.

2004              Best Paper Award

*Paleontological  
Society*

Best paper, *Journal of Paleontology*.

2003–2005      Distinguished Speaker

*Paleontological  
Society*

Paleontological Society Distinguished Speaker.

2000              Fellow

*California  
Academy of  
Sciences*

Elected Fellow of the California Academy of Sciences.

1999              R. Tucker Abbott Visiting Curator

*Bailey-Matthews  
Museum*

R. Tucker Abbot Visiting Curator, 1999.

1995              Graduate Research Fellow Award

*Southeast  
Missouri State  
University*

Graduate Research Fellow allocation.

1995              Proposal Development Award

*Southeast  
Missouri State  
University*

Award for proposal development.

1984 David S. Fensom Award  
David S. Fensom Award for Excellence in Research.

PROFESSIONAL EXPERIENCE

2008–Present Curator, CALIFORNIA ACADEMY OF SCIENCES  
Curator, Department of Invertebrate Zoology & Geology.

2017–2020 Visiting Professor, CHINA UNIVERSITY OF  
GEOSCIENCES  
Visiting Professor, Key Paleontology Laboratory, China University of  
Geosciences, Wuhan, China.

2012–2013,  
2022–present Chair, THE CURATORS FORUM  
Chairperson of Curators Forum, California Academy of Sciences.

2011–2014 Department Chair, CALIFORNIA ACADEMY OF  
SCIENCES  
Department Chair, Department of Invertebrate Zoology & Geology.

2017–2020 Associate Curator, CALIFORNIA ACADEMY OF  
SCIENCES  
Associate Curator, Department of Invertebrate Zoology & Geology.

2001–2004 Department Chair, CALIFORNIA ACADEMY OF  
SCIENCES  
Department Chair, Department of Invertebrate Zoology & Geology.

1999–2003 Assistant Curator, CALIFORNIA ACADEMY OF  
SCIENCES  
Assistant Curator, Department of Invertebrate Zoology & Geology.

1997–1998 Research Associate, UNIVERSITY OF ARIZONA  
Research Associate, Department of Geosciences.

1994–1998 Assistant Professor, SOUTHEAST MISSOURI STATE  
UNIVERSITY  
Assistant Professor, Department of Biology.

1994 Lecturer, UNIVERSITY OF CALIFORNIA DAVIS  
Lecturer of Biological Oceanography, Department of Geology.

1994 Post-doctoral scholar, UNIVERSITY OF CALIFORNIA  
DAVIS  
Post-doctoral scholar, Department of Geology.

1992 Research Assistant, UNIVERSITY OF CALIFORNIA  
DAVIS  
Research Assistant, Museum of Nematology.

- 1991-1992 Collections Manager, UNIVERSITY OF CALIFORNIA  
DAVIS  
Collections Manager, Museum of Zoology.
- 1989 Research Assistant, UNIVERSITY OF CALIFORNIA  
DAVIS  
Research Assistant, Department of Geology.
- 1989-1993 Teaching Assistant, UNIVERSITY OF CALIFORNIA  
DAVIS  
Teaching Assistant, Department of Geology, Ecology Graduate Group.
- 1988 Teaching Assistant, UNIVERSITY OF MARYLAND  
Teaching Assistant, Department of Zoology.
- 1985-1986 Teacher, NOWLIN OCEANVIEW PRIVATE SCHOOL  
High school teacher, General Science, Biology, and Oceanography.

#### GRANTS & FUNDING

- National Science Foundation, 2020* NSF EAR, "EAGER: Applying Paleoecosystem-Mass Extinction Theory to Socio-Economic Systems During COVID-19". \$242,627
- National Science Foundation 2018* NSF OCE, "The Holocene and Anthropocene as windows into the future of marine systems." Co-PIs T. Hill, D. Pak. \$120,242.
- National Science Foundation 2017* NSF, "Integrated Earth Systems Collaborative Research: Terrestrial Late Permian to Early Triassic Earth Systems in NE Pangea: Insights into the Tempo, Effects, and Causes of the End-Permian Mass Extinction." Co-PIs K. Angielczyk, J. Crowley, R. Gastaldo, J. Griessman, C. Sidor, N. Tabor, W. Yang. \$223,816.
- National Science Foundation 2016* NSF EAR, "Collaborative Research: Mesozoic Tethyan paleocommunity dynamics: Modelling complexity and stability during times of biotic escalation and community restructuring." Co-PI: C. Tyler. \$208,863.
- National Science Foundation 2015* NSF DBI, "Digitization TCN: Collaborative: Documenting Fossil Marine Invertebrate Communities of the Eastern Pacific - Faunal Responses to Environmental Change over the last 66 million years". Co-PIs: C. R. Marshall, J. Vendetti, E. Nesbitt, G. Dietl, E. Davis, P. Druckenmiller. \$530,274.
- National Science Foundation 2013* NSF EAR, "ELT Collaborative Research: Restructuring of terrestrial environments following the Permian-Triassic mass extinction". Co-PIs: K. D. Angielczyk, C. Sidor. \$114,390.
- Nova Southeastern University 2013* President's Faculty Research & Development Grant, "Tissue analysis and shell sclerochronology of oil impacted molluscs". Co-PIs: D. S. Roopnarine, L. C. Anderson. \$8,200.
- Louisiana Sea Grant 2010* "Changes in coastal food webs caused by the Deepwater Horizon crude oil spill: Responses by and effects on oysters and other primary consumers". Co-PIs: L. C. Anderson, D. Goodwin. \$10,000.
- California Academy of Sciences 2008* "Predicting and assessing impacts of the Cosco Busan San Francisco Bay oil spill". Co-PI: J. Dumbacher. \$36,988.
- National Science Foundation 2005* "CMG Collaborative Research: Mathematical Modeling and Bayesian Analysis of Paleocommunity Collapse during Mass Extinctions". Co-PI: S. Wang. \$182,284.

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| National Science Foundation 2003              | Postdoctoral Fellowship in Interdisciplinary Informatics. PI: K. D. Angielczyk. Sponsoring Scientist: P. D. Roopnarine. \$100,000.  |
| National Science Foundation 2003              | “Collaborative Research: Examining origination, extinction, and recovery in terebratulide brachiopods: the integration of phylogeny, morphometrics, and biogeography”. PIs: S. J. Carlson, L. R. Leighton. \$215,535. |
| National Science Foundation 2003              | NSF EAR, “SGER: Geometric morphometric-based visualization and analysis of morphological integration: A new look at bivalve evolution”. \$31,245.   |
| National Science Foundation 1999              | NSF EAR “Tempo and mode of evolution of two lineages of Lower Devonian conodonts”. Co-PI: M. Murphy. \$116,777.   |
| University of Arizona 1998                    | UA Foundation Research Grant. \$2,240.  |
| Southeast Missouri State University 1994-1997 | Paleobiology Improvement Grant, Library Endowment Fund. \$1,953.  |
|   | Graduate Research Funding Committee Grant. \$4,579.   |
|   | Graduate Research Funding Committee Grant. \$4,959.   |

## PUBLICATIONS

- 2023 **Roopnarine, P. D.**, M. Abarca, D. Goodwin and J. Russack. Economic cascades, tipping points, and the costs of a business-as-usual approach to COVID-19. *Frontiers in Physics*. 11:1074704. doi: 10.3389/fphy.2023.1074704
- Huang, Y., ZQ Chen, **P. D. Roopnarine**, M. J. Benton, L. Zhao, X. Feng and Z. Li. 2023. The stability and collapse of marine ecosystems during the Permian-Triassic mass extinction. *Current Biology*, 33:1-12. doi.org/10.1016/j.cub.2023.02.007
- Sampson, S. D. and **P. D. Roopnarine**. 2023. We Need to Think about Conservation on a Different Timescale. *Scientific American*, October 2023.
- 2022 **Roopnarine, P. D.**, R. M. Banker and S. Sampson. 2022. Impact of the extinct megaherbivore Steller’s sea cow (*Hydrodamalis gigas*) on kelp forest resilience. *Frontiers in Ecology and Evolution*. doi.org/10.3389/fevo.2022.983558
- Banker, R. M., A. A. Dineen, M. G. Sorman, C. L. Tyler and **P. D. Roopnarine**. 2022. Beyond functional diversity: the importance of trophic position to understanding functional processes in community evolution. *Frontiers in Ecology and Evolution*. doi.org/10.3389/fevo.2022.983374.
- Palmer, H. M. et al. 2022. Ecological and environmental stability in offshore Southern California Marine Basins through the Holocene. *Paleoceanography and Paleoclimatology* e2021PA004373.
- 2021 **Roopnarine, P. D.** and R. M. W. Banker. 2021. Perspective: Ecological stasis on geological timescales. *Science* 372:237-238.
- Huang, Y., Z. Q. Chen, **P. D. Roopnarine**, M. J. Benton, W. Yang, J. Liu and L. Zhao. 2021. Ecological dynamics of terrestrial and freshwater ecosystems across three mid-Phanerozoic mass extinctions from northwest China. *Proceedings of the Royal Society B* 288:20210148.
- Roopnarine, D. S., **P. D. Roopnarine**, L. C. Anderson, J. H. Hwang and S. Patel. 2021. Metaplasia of respiratory and digestive tissues in the Eastern oyster *Crassostrea virginica* associated with the Deepwater Horizon oil spill. *PLoS One* 16 (9): e0247739.
- Yang, W. et al. 2021. Paleoenvironmental and Paleoclimatic Evolution and Cyclo- and Chrono-Stratigraphy of Upper Permian-Lower Triassic

Fluvial-Lacustrine Deposits in Bogda Mountains, NW China – Implications for Diachronous Plant Evolution Across the Permian-Triassic Boundary. *Earth-Science Reviews* 103741.

- 2020 Kempf, Hannah L., Ian O. Castro, Ashley A. Dineen, Carrie L. Tyler, and Peter D. **Roopnarine**. 2020. Comparisons of Late Ordovician ecosystem dynamics before and after the Richmondian invasion reveal consequences of invasive species in benthic marine paleocommunities. *Paleobiology* 46:320-336.
- Palmer, Hannah M., T. M. Hill, P. D. **Roopnarine**, S. E. Myhre, K. R. Reyes, and J. T. Donnenfield. 2020. Southern California margin benthic foraminiferal assemblages record recent centennial-scale changes in oxygen minimum zone. *Biogeosciences* 17:2923–2937.
- 2019 **Roopnarine**, P. D., K. D. Angielczyk, A. Weik and A. Dineen. 2019. Ecological persistence, incumbency and reorganization in the Karoo Basin during the Permian-Triassic transition. *Earth-Science Reviews* 189:244-263.
- Dineen, A., P. D. **Roopnarine**, M. Fraiser. 2019. Ecological continuity and transformation after the Permo-Triassic mass extinction. *Biology Letters* 15.
- Saulsbury, J. et al. 2019. Evaluating the influences of temperature, primary production, and evolutionary history on bivalve growth rates. *Paleobiology* 45:405-420.
- 2018 **Roopnarine**, P. D. Ecological modeling of paleocommunity food webs, 2018. In *Conservation Paleobiology*. Science and Practice. Gregory Dietl and Karl Flessa, editors. University of Chicago Press.
- Roopnarine**, P. D. and A. A. Dineen, 2018. Coral reefs in crisis: The reliability of deep-time food web reconstructions as analogs for the present. In *Marine Conservation Paleobiology*. Carrie Tyler and Chris Schneider, editors. Springer.
- Roopnarine**, P. D., Kenneth D. Angielczyk, Savannah Olroyd, Sterling J. Nesbitt, Jennifer Botha-Brink, Brandon R. Peacock, Michael O. Day, Roger M. H. Smith, 2018. Comparative Ecological Dynamics Of Permian-Triassic Communities From The Karoo, Luangwa And Ruhuhu Basins Of Southern Africa. *Journal of Vertebrate Paleontology* 37(6): 254-272.
- Marshall, C. R. et al., 2018. Quantifying the dark data in museum fossil collections as palaeontology undergoes a second digital revolution. *Biology Letters* 14:20180431.
- Printrakoon, C., P. D. **Roopnarine** and T. Yeemin, 2018. Ecology of Pinnidae (Mollusca: Bivalvia) from The Gulf of Thailand. *Acta Oceanologica Sinica* <https://doi.org/10.1007/s13131-018-1230-4>.
- 2017 Myhre, S. E., K. J. Kroeker, T. M. Hill, P. D. **Roopnarine** and J. P. Kennett, 2017. Community benthic paleoecology from high-resolution climate records: Mollusca and Foraminifera in post-glacial environments of the California Margin. *Quaternary Science Reviews* 155: 179-197.
- 2016 **Roopnarine**, P. D., 2016. Ancient food web interactions. *Access Science*, McGraw-Hill Education. <http://dx.doi.org/10.1036/1097-8542.YB160510>
- Roopnarine**, P. D. and K. D. Angielczyk, 2016. The stability of ecological communities as an agent of evolutionary selection: Evidence from the Permian Triassic mass extinction. In *Evolutionary Theory: A Hierarchical Perspective*. Niles Eldredge, Telmo Pievani, Emanuele Serrelli, and Ilya Tëmkin, editors. University of Chicago Press. p. 307-333.
- 2015 **Roopnarine**, P. D. and K. D. Angielczyk. 2015. Community stability and selective extinction during the Permian-Triassic mass extinction. *Science* 350: 90-93.

- Moffitt, S. E., T. M. Hill, P. D. **Roopnarine** and J. P. Kennett. 2015. Response of seafloor ecosystems to abrupt global climate change. *Proceedings of the National Academy of Sciences*. 112: 4684-4689.
- 2014 **Roopnarine**, P. D. 2014. Humans are apex predators. *Proceedings of the National Academy of Sciences*. doi/10.1073/pnas.1323645111
- Rocha L. A. et al. 2014. Specimen collection: An essential tool. *Science*. 344:814-815.
- Schreiber, H. A., P. D. **Roopnarine** and S. J. Carlson. 2014. Three-dimensional morphological variability of Recent rhynchonellide brachiopod crura. *Paleobiology*. 40:640-658.
- 2013 **Roopnarine**, P. D. 2013. Ecology and the Tragedy of the Commons. *Sustainability* 5:749-773.
- Roopnarine**, P. D. 2013. Omslagpunt voor de aarde (Tipping the Biosphere). In *Meer!*, M. Thieme (ed.). Uitgeverij Jan van Arkel, Netherlands. p. 87-98.
- Goodwin, D. H., D. Gillkin and P. **Roopnarine**. 2013. Preliminary evaluation of potential stable isotope and trace element productivity proxies in the oyster *Crassostrea gigas*. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 373:88-97.
- Simons, J. D. et al. 2013. Building a fisheries trophic interaction database for management and modeling research in the Gulf of Mexico large marine ecosystem. *Bulletin of Marine Science*. 89:135-160.
- Vermeij, G. J. and P. D. **Roopnarine**. 2013. Reining in the Red Queen: The dynamics of adaptation and extinction re-examined. *Paleobiology*. 39:560-575.
- 2012 **Roopnarine**, P. D. 2012. Red queen for a day: models of symmetry and selection in paleoecology. *Evolutionary Ecology*. 26:1-10.
- Roopnarine**, P. D. and K. D. Angielczyk. 2012. The evolutionary palaeoecology of species and the tragedy of the commons. *Biology Letters*. 8:147-150.
- Roopnarine**, P. D. and R. Hertog. 2012. Detailed food web networks of three Greater Antillean coral reef systems: The Cayman Islands, Cuba and Jamaica. *Dataset Papers in Ecology*. 23, 9 p.
- Barnosky, A. et al. 2012. Approaching a state-shift in Earth's biosphere. *Nature*. 486:52-58.
- Mitchell, J. S., P. D. **Roopnarine** and K. D. Angielczyk. 2012. Late Cretaceous restructuring of terrestrial communities facilitated the End-Cretaceous mass extinction in North America. *Proceedings of the National Academy of Sciences*. 109:18857-18861.
- 2011 Kavanaugh, D. H., S. L. Archambeault, P. D. **Roopnarine** and J. Ledford. 2011. A re-consideration of the taxonomic status of *Nebria lacustris* Casey (Coleoptera: Carabidae: Nebriini) based on multiple datasets - a single species or a species complex?. *Zookeys*. 147:199-228.
- Mindell DP, Fisher BL, **Roopnarine** P, Eisen J, Mace GM, et al. 2011. Aggregating, Tagging and Integrating Biodiversity Research. *PLoS ONE*. 6: e19491.
- 2010 **Roopnarine**, P. D. 2010. Networks, extinction and paleocommunity food webs. in J. Alroy and G. Hunt, eds., *Quantitative Methods in Paleobiology*, The Paleontological Society Papers, 16: 143-161.
- Goodwin, D. H., A. Cohen and P. D. **Roopnarine** 2010. Forensics on the half shell: A sclerochronological investigation of a modern biological invasion in San Francisco Bay, United States. *Palaios*., 25: 742-753.

- 2009 **Roopnarine**, P. D. 2009. Ecological modeling of paleocommunity food webs. in G. Dietl and K. Flessa, eds., *Conservation Paleobiology*, The Paleontological Society Papers, 15: 195-220.
- Bennington, J. B. et al. 2009. Critical Issues of Scale in Paleoecology. *Palaios*. 24: 1-4.
- 2008 **Roopnarine**, P. D. 2008. Ecological informatics: Catastrophe theory. In Jørgensen, S. E., editor, *Encyclopedia of Ecology*. Elsevier Press. p. 531-536.
- Roopnarine**, P. D., Signorelli, J., and Laumer, C. 2008. Systematic, biogeographic and microhabitat-based morphometric variation of the bivalve *Anomalocardia squamosa* (Bivalvia: Veneridae: Chioninae) in Thailand. *The Raffles Bulletin of Zoology*. 18:95-102.
- Goodwin, D. H., Anderson, L. C. and P. D. **Roopnarine** 2008. Evolutionary origins of novel conchologic growth patterns in tropical American corbulid bivalves. *Evolution and Development*. 10:642-656.
- Vermeij, G. J., and **Roopnarine**, P. D. 2008. The coming Arctic invasion. *Science*. 321: 780-781.
- 2007 **Roopnarine**, P. D., Angielczyk, K. D., Wang, S. C., and Hertog, R. 2007. Trophic network models explain instability of Early Triassic terrestrial communities. *Proceedings of the Royal Society B*. 274:2077-2086.
- 2006 **Roopnarine**, P. D. 2006. Extinction cascades and catastrophe in ancient food webs. *Paleobiology*, 32:1-19.
- Roopnarine**, P. D., Angielczyk, K. D., and Hertog, R. 2006. Comment on "Statistical independence of escalatory ecological trends in Phanerozoic marine invertebrates". *Science*. 314:925d.
- 2005 **Roopnarine**, P. D. 2005. The likelihood of stratophenetic-based hypotheses of genealogical succession. *Special Papers in Palaeontology*. 73:143-157.
- Roopnarine**, P. D., Murphy, M. A., and Buening, N. 2005. Microevolutionary dynamics of the Early Devonian conodont *Wurmiella* from the Great Basin of Nevada. *Paleontologia Electronica*. 8(2):16p.
- Anderson, L. C. and **Roopnarine**, P. D. 2005. Role of constraint and selection in the morphologic evolution of *Caryocorbula* (Mollusca: Corbulidae) from the Caribbean Neogene. *Paleontologia Electronica*. 8(2):18p.
- Angielczyk, K. D., **Roopnarine**, P. D., and Wang, S. C. 2005. Modeling the role of primary productivity disruption in end-Permian extinctions, Karoo Basin, South Africa. In Lucas, S. G. and Zeigler, K. F., editors, *The Nonmarine Permian*, number 30 in New Mexico Museum of Natural History and Science Bulletin, pages 16-23.
- Elser, J. J., Schampel, J. H., Kyle, M., Watts, J., Carson, E. W., Dowling, T. E., Tang, C., and **Roopnarine**, P. D. 2005. Response of grazing snails to phosphorus enrichment of modern stromatolitic microbial communities. *Freshwater Biology*. 50:1826-1835.
- 2004 Dettman, D. L., Flessa, K. W., **Roopnarine**, P. D., Schöne, B. R., and Goodwin, D. H. 2004. The use of oxygen isotope variation in shells of estuarine mollusks as a quantitative record of seasonal and annual Colorado River discharge. *Geochimica et Cosmochimica Acta*. 68:1253-1263.
- 2003 **Roopnarine**, P. D. 2003. Analysis of rates of morphologic evolution. *Annual Reviews of Ecology, Evolution, and Systematics*. 34:605-632.



- Anderson, L. C. and **Roopnarine**, P. D. 2003. Evolution and phylogenetic relationships of Neogene Corbulidae (Bivalvia: Myoidea) of Tropical America. *Journal of Paleontology*. 77:1086–1102.
- Tang, C. M. and **Roopnarine**, P. D. 2003. Complex morphological variability in complex evaporitic systems: Thermal spring snails from the Chihuahuan Desert, Mexico. *Astrobiology*. 3:597–607.
- 2002 **Roopnarine**, P. D. 2002. Book review: Evolutionary History of the Bivalvia. *Veliger*.
- Roopnarine**, P. D. 2002. Empiricism at all levels. "Evolutionary Patterns. Growth, Form, and Tempo in the Fossil Record". *Trends in Ecology and Evolution*. 17:441–442. (Book review).
- Schöne, B. R., Goodwin, D. H., Flessa, K. W., Dettman, D. L., and **Roopnarine**, P. D. 2002. Sclerochronology and growth of the bivalve mollusks *Chione fluctifraga* and *Chione cortezi* in the northern Gulf of California, Mexico. *Veliger*. 45:45–54.
- 2001 **Roopnarine**, P. D. 2001. The description and classification of evolutionary mode in stratophenetic series: A computational approach. *Paleobiology*, 27:446–465.
- Roopnarine**, P. D. 2001. A history of diversification, extinction, and invasion in tropical America as derived from species-level phylogenies of chionine genera (Family Veneridae). *Journal of Paleontology*. 75:644–658.
- Roopnarine**, P. D. 2001. Testing the hypothesis of heterochrony in morphometric data: Lessons from a bivalved mollusk. In Zelditch, M. L., editor, *Beyond Heterochrony: The Evolution of Development*, pages 271–303. John Wiley and Sons.
- 2000 **Roopnarine**, P. D. 2000. Book review: Bivalves, an eon of evolution. *Veliger*.
- Roopnarine**, P. D. and Vermeij, G. J. 2000. One species becomes two: The case of *Chione cancellata*, the resurrected *C. elevata*, and a phylogenetic analysis of *Chione*. *Journal of Molluscan Studies*. 66:517–534.
- Tang, C. M. and **Roopnarine**, P. D. 2000. Cretaceous rudist reef mounds of southern Arizona: An educational opportunity for active learning. In McCord, R. D. and Boaz, D., editors, *Mesa Southwest Museum Bulletin*. Southwest Paleontological Symposium: Proceedings 2000, number 7, pages 65–71.
- 1999 **Roopnarine**, P. D. and Beussink, A. 1999. Extinction, geographic replacement, and escalation of the bivalve *Chione* in the Late Neogene of Florida. *Paleontologia Electronica*. 2(1). 24p.
- Roopnarine**, P. D., Byars, G., and Fitzgerald, P. 1999. Anagenetic evolution, stratophenetic patterns, and random walk models. *Paleobiology*. 25(1):41–57.
- 1998 **Roopnarine**, P. D. 1998. Translating trees into taxonomy within Veneridae (Bivalvia): A reply to Harte. *Malacologia*, 39(1–2):221–224.
- Roopnarine**, P. D., Fitzgerald, P., Byars, G., and Kilb, K. 1998. Coincident boron profiles of bivalves from the Gulf of California: Implications for the calculation of paleosalinities. *Palaios*. 13:395–400.
- 1997 **Roopnarine**, P. D. 1997. Endemism and extinction of a new genus of Chionine (Bivalvia: Veneridae) bivalve from the late Neogene of Venezuela. *Journal of Paleontology*. 71(6):1039–1046.
- 1996 **Roopnarine**, P. D. 1996. Systematics, biogeography and extinction of chionine bivalves (Early Oligocene - Recent) in the Late Neogene of tropical America. *Malacologia*. 38(1–2):103–142.

- 1995 **Roopnarine, P. D.** 1995. A re-evaluation of stasis between the species *Chione erosa* and *C. cancellata* (Bivalvia: Veneridae). *Journal of Paleontology*. 69(2):280–287.
- 1994 **Roopnarine, P. D.** 1994. Systematics, Biogeography and Extinction of chionine bivalves in the Neogene of tropical America. Ph.D. Dissertation, University of California Davis. 280 pp.

#### INVITED LECTURES & WORKSHOP LEADERSHIP

- 2023 Seminar series. ASPIRE: Adaptive Social, Psychological and Informational Response to Emergencies.
- 2021 Graduate seminar series. California State University, Los Angeles.  
Geobiology seminar series. Union College, New York.
- 2020 Genomics Social Hour. California Academy of Sciences.  
Graduate seminar in Evolutionary Biology. University of California Santa Barbara.  
Seminar colloquium. Institute for Biodiversity Science & Sustainability, California Academy of Sciences.  
Series in Ecology and Evolutionary Biology. National Museum of Natural History, Rio de Janeiro, Brazil.
- 2019 Workshop leader, “Stability: Transience, persistence and timescales.” Federal Ministry of Education and Research, Berlin, Germany.  
Distinguished Speaker, Dept. of Earth and Climate Sciences, San Francisco State University.  
Seminar Colloquium, Dept. of Geosciences and Geological and Petroleum Engineering, Missouri Science & Technology University, Rolla, Missouri.  
Symposium, “Historical Ecology.” 39<sup>th</sup> meeting of the Association of Marine Laboratories of the Caribbean. Punta Cana, Dominican Republic.
- 2018 Plenary Speaker, IGCP 630, Wuhan, China.
- 2017 Plenary Speaker, Fourth International Conference of Geobiology, Wuhan, China.  
Seminar Colloquium, Dept. of Geosciences, Miami University of Ohio.
- 2016 Symposium, “Evolution of the Earth System”, Annual Meeting, American Geophysical Union.  
K-Pg Working Group, Dept. of Geosciences, University of California, Berkeley.
- 2015 Keynote Speaker, “Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction”, Annual Meeting, Geological Society of America.  
Seminar Colloquium, Department of Mathematics and Statistics, Swarthmore College.
- 2014 Keynote Speaker, “Topics in Paleoecology: Modern Analogues and Ancient Systems”, Annual Meeting, Geological Society of America.  
International Biogeosciences Conference, Wuhan, China.

- 2013 K-Pg Food Webs Workshop, University of California, Berkeley.
- Seminar Colloquium, Bodega Marine Laboratory, University of California Davis.
- Fossil Coffee Series, University of California Museum of Paleontology, University of California, Berkeley.
- Bay Area Science Series. Romberg Tiburon Center for Marine Sciences, San Francisco State University.
- 2012 Keynote Speaker, Centenary Meeting, Paläontologisches Gesellschaft, Museum für Naturkunde, Berlin.
- 2011 Seminar Colloquium, Paläontologisches Institut und Museum der Universität Zürich.
- Advisory Council Retreat, Gulf of the Farallones National Marine Sanctuary.
- Lessons from Deepwater Horizon, American Association of Museums.
- 2010 Quantitative Paleobiology Symposium, Paleontological Society.
- Plenary Speaker, Student Symposium, Annual Meeting of the Western Society of Naturalists.
- Seminar Colloquium, Department of Geosciences, University of California Davis.
- Seminar Colloquium, Department of Geology, San Jose State University.
- Seminar Colloquium, Department of Integrative Biology, University of California, Berkeley.
- 2009 Plenary speaker, First Bay Area NSF-REU Symposium.
- Joint Symposium, California Academy of Sciences and University of California San Francisco.
- Fossil Coffee, University of California Museum of Paleontology, University of California, Berkeley.
- 2008 Climate Change Symposium, Annual Meeting of the California Science Teachers' Association.
- 2007 Seminar Colloquium, Department of Geology, The Field Museum.
- Special Symposium - Environmental Change, Extinction Risk, and the Maintenance of Biodiversity through Time. Annual Meeting Ecological Society of America. San Jose, California.
- Hewitt Club Lecture Series, Department of Geology, University of California Riverside.
- Paleobiology Seminar, Department of Geological and Environmental Sciences, Stanford University.
- Geological Sciences and Marine Chemistry Seminar, Scripps Institution of Oceanography.
- 2006 Evolutionary Morphology Seminar Series, Committee on Evolutionary Biology, University of Chicago.
- 2004 Fossil Coffee Seminar Series, University of California Museum of Paleontology, University of California, Berkeley.

- Biology of Extinction, First Okazaki Research Conference, Okazaki Research Institute, Japan.
- 2003 Seminar Colloquium, Smithsonian Tropical Research Institute, Panama.
- Whole Earth Seminar Series, Department of Earth Sciences, University of California Santa Cruz.
- Seminar Colloquium, Department of Geosciences, San Francisco State University.
- 2002 Special Symposium - Systematics & Stratigraphy, ECOS VIII, Toulouse, France.
- Seminar Colloquium, Department of Geological Sciences, University of Iowa.
- 2001 Seminar Colloquium, Department of Integrative Biology, University of California, Berkeley.
- 2000 Seminar Colloquium, Department of Geology, University of California Davis.
- Seminar Colloquium, Department of Geophysical Sciences, University of Chicago.
- Evolutionary Morphology Seminar Series, Committee on Evolutionary Biology, University of Chicago.

#### PROFESSIONAL SERVICE

- 2022-present American Geophysical Union Landing Ambassador.
- Associate Editor, *Frontiers in Geology*.
- 2021-present Member, Committee on Diversity, Equity and Inclusivity. The Paleontological Society.
- 2019 Co-organizer and co-leader, Paleo To Policy workshop, Bodega Marine Laboratory, California.
- Co-organizer, Symposium "Evolution, communities and ecosystems: systems approaches to paleoecology", 11<sup>th</sup> North American Paleontological Conference.
- 2017-present External advisor, BioTip program, Federal Ministry of Education and Research, Germany.
- 2018 Organizing Committee, IGCP 630 conference, Wuhan, China.
- 2017 Co-organizer, Symposium "Co-Evolutionary Dynamics in the Fossil Record", Annual Meeting, Geological Society of America.
- 2016 Board of Directors, STEPPE, an NSF-supported consortium promoting multidisciplinary research and education on Earth's deep-time sedimentary crust.
- Co-organizer, Symposium "The Permian-Triassic Crisis and Its Aftermath: Biotic, Climatic, and Environmental Upheavals", Annual Meeting, Geological Society of America.
- 2014 Co-organizer, Symposium "Extreme Environmental Conditions and Biotic Responses during the Permian-Triassic Boundary Crisis and Early Triassic Recovery", Annual Meeting, Geological Society of America.
- 2013 Co-organizer, Hell Creek Cretaceous-Paleogene Group Workshop, University of California, Berkeley.

- 2011 Committee member, Committee of Visitors, Surface Earth Processes, NSF.  
Contributing Editor, *Paleontologia Electronica*.
- 2010-2015 Curator, *Biodiversity and Systematic Hub*, PLoS.  
Academic Editor, PLoS One.
- 2007 Chair, Organizing Committee, CalPaleo Annual Meeting.
- 2005 President, Western Society of Malacologists.  
Co-Organizer, Annual Meetings of the American Malacological Society and the Western Society of Malacologists.
- 2004-2014 Biology Representative, Affiliated Institutes, American Association for the Advancement of Science.
- 2004 President-Elect and Council Member, Western Society of Malacologists.
- 2003-2004 Associate Editor, *Journal of Paleontology*.
- 2003 Organizing Committee, Symposium: *Biodiversity: Past, Present and Future*. 84<sup>th</sup> Annual Meeting of the AAAS, Pacific Division.
- 2002-2003 Vice-President, SEPM/Society for Sedimentary Geology, Pacific Division.
- 2002 Roopnarine, P. D. and C. M. Tang, organizers. Symposium: "Evolutionary paleobiology and paleoecology of the Bivalvia". Geological Society of America Annual Meeting.
- 2001-2003 Schuchert Award Committee, The Paleontological Society.
- 2001 Organizer, the first Summer Morphometrics Workshop, hosted jointly with Department of Integrative Biology, University of California, Berkeley.  
Organizing Committee, Seventh North American Paleontological Conference.
- 2000-2004 Councilor-At-Large, American Malacological Society.

#### POST-DOCTORAL SUPERVISION

- 2021-present · Rebecca Wilcox, California Academy of Sciences.
- 2020-2022 · Roxanne Banker, University of Nevada, Las Vegas.
- 2019-2020 · Yuangeng Huang. China University of Geosciences, Wuhan.
- 2015-2019 · Ashley Dineen. University of California Museum of Paleontology, University of California, Berkeley.
- 2006-2007 · Kenneth Angielczyk. Department of Geology, The Field Museum.
- 2003-2005 · Kenneth Angielczyk. Department of Geology, The Field Museum.
- 2000-2001 · Lindsey Leighton, Department of Geosciences, University of Alberta.

#### GRADUATE STUDENT ADVISEES

- 2021-present · Sara Sjosten, Ph.D. University of Exeter, United Kingdom.

- 2019-present · Tatiana Marrone, M.S. San Francisco State University.
- 2020 · Courtney Chin, M.S. San Francisco State University.
- 2020 · Allen Weik. San Francisco State University.
- 2012 · Cheewarat Printragoon, M.S. Kasetsart University, Bangkok, Thailand.
- 2009 · Rachel Hertog, M.S. San Francisco State University.
- 2004 · Zita Maliga, M.S. San Francisco State University.
- 1998 · Angie Charles, M.S. Southeast Missouri State University.
- 1997 · Brent Hopkins. M.S. Southeast Missouri State University.
- 1997 · Richard Pelikan, M.S. Southeast Missouri State University.

#### COURSES TAUGHT

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|--|--|
| <i>California Academy of Sciences</i>      | The Nature of Species<br>Evolution and the Fossil record   |
| <i>San Francisco State University</i>      | Historical Geology<br>History of Life  |
| <i>University of Arizona</i>               | Paleontology   |
| <i>Southeast Missouri State University</i> | Biometry; General Zoology; Advanced Topics in Aquatic Invertebrate Zoology;<br>Advanced Topics in Terrestrial Invertebrate Zoology |
| <i>University of California Davis</i>      | Biological Oceanography  |

#### PUBLIC SERVICE & OUTREACH

|                                      |  |
|--------------------------------------|--|
| <i>Service</i>                       | 2018-present · Board member, YES, Nature to Neighborhoods,<br><a href="https://www.yesfamilies.org/">https://www.yesfamilies.org/</a>  |
| <i>Invited Lectures &amp; Events</i> | 2023. · Science is a Piece of Cake. A Geology Cake-Off. KQED Live, PBS.<br><a href="https://www.youtube.com/live/ZD5g4B5QIOI?si=fZWU2bIocZLDCXMk">https://www.youtube.com/live/ZD5g4B5QIOI?si=fZWU2bIocZLDCXMk</a>   |
|                                      | 2023. · Earth Day. Astronomers for Earth and Climate HQ, San Francisco State University.   |
|                                      | 2022. · The Lillienthal Lecture, California Academy of Sciences.   |
|                                      | 2022. · Burke Museum, University of Washington.<br><a href="https://www.burkemuseum.org/calendar/dino-lecture-last-dinosaurs">https://www.burkemuseum.org/calendar/dino-lecture-last-dinosaurs</a>   |
|                                      | 2022. · North Carolina Museum of Natural History.<br><a href="https://naturalsciences.org/calendar/event/perman-monsters-lecture-series-rewiring-the-biosphere/">https://naturalsciences.org/calendar/event/perman-monsters-lecture-series-rewiring-the-biosphere/</a> |
|                                      | 2022. · Members Lecture, California Academy of Sciences. “Resilience and Regeneration of northern Pacific kelp forests: Lessons from an extinct megaherbivore, Steller’s sea cow”.   |
|                                      | 2022. · Astronomers for Earth, Climate HQ.<br><a href="http://physics.sfsu.edu/astro4earth/">http://physics.sfsu.edu/astro4earth/</a>  |
|                                      | 2021 · SETI Talks. <a href="https://youtu.be/3VaohaNJ08">https://youtu.be/3VaohaNJ08</a>   |

- 2020 · The Breakfast Club. California Academy of Sciences.
- 2020 · Night School. California Academy of Sciences.  
<https://youtu.be/s6CpgGk6I24>
- 2019 · SETI Talks. <https://youtu.be/zxss5qUBgmg>
- 2019 · Members Lecture. California Academy of Sciences.
- 2016 · Science Salon. Many Labs, San Francisco.
- 2013 · Museum Series. Bohemian Club Summer Gathering, The Bohemian Grove.
2012. · The Foundation Lectures. Castro Valley Education Foundation.
- 2010 · Pritzker Lecture Series. California Academy of Sciences.
- 2010 · The Zero1 Symposium. Leonardo Society.
- 2009 · Science Cafe. California Academy of Sciences.
- 2009 · Friends of San Pedro Valley, Pacifica, California.
- 2008 · Lecturer, Filoli Gardens. San Mateo, California.
- 2006 · The Environmental Alliance. Martinez, California.
- 2006 · Lecturer, Audubon Canyon Ranch. Point Reyes National Seashore, California.
- 2005 · Distinguished Speaker Series. California State University East Bay.
- 2004 · Member's Lecture. California Academy of Sciences.
- 2001 · Member's Lecture. California Academy of Sciences.

*Film &  
Documentaries*

- 2012 · Cannonball Chemistry. *Mythbusters Television Series*.  
[http://www.imdb.com/title/tt2498690/?ref=nm\\_film\\_slf\\_1](http://www.imdb.com/title/tt2498690/?ref=nm_film_slf_1)
- 2010 · Call of Life. *Species Alliance*. <http://www.imdb.com/title/tt1002965/>

*Outreach Videos*

- 2020 · The COVID-19 Pandemic: Science for Solutions.  
<https://youtu.be/9-c6bsmYkxE>
- 2020 · Fossil Forward. <https://youtu.be/2vEu9tRhZ9M>
- 2017 · Why I March for Science. <https://youtu.be/9vcoF9UcWBU>
- 2016 · Food Webs. <https://youtu.be/xrl6FJj6kc4>
- 2016 · Global Change Scientist. <https://youtu.be/xJTvAaK84jA>
- 2016 · Oysters and the Gulf Oil Spill. <https://youtu.be/65gA5sCxsOo>
- 2015 · Take a Virtual Dive in a Kelp Forest. <https://youtu.be/HGMvPqfcDOK>
- 2013 · Fossils: Chat with an Academy Scientist.  
<https://youtu.be/FOde1NUySjc>
- 2013 · Food Webs. <https://youtu.be/qa2HZpn4EN8>
- 2010 · Bioforum: Climate Change. [http://library.fora.tv/2010/04/17/BioForum\\_intro\\_by\\_Dr\\_peter\\_Roopnarine](http://library.fora.tv/2010/04/17/BioForum_intro_by_Dr_peter_Roopnarine)

2010 · Marine food webs and the environment.  
[http://www.leonardo.info/isast/2010symposium\\_talks-Roopnarine.html](http://www.leonardo.info/isast/2010symposium_talks-Roopnarine.html)

2010 · Ecosystem Impact of the Deepwater Horizon Disaster.

2010 · Gulf Oil Spill Effects On Wildlife. <https://youtu.be/8Uax5FRWnvs>

#### *Literature*

2023 · Sampson, S. D. and P. D. Roopnarine. 2023. We Need to Think about Conservation on a Different Timescale. *Scientific American*, October.  
<https://www.scientificamerican.com/article/we-need-to-think-about-conservation-on-a-different-timescale/>

2017 · Betting on Conservation. *bioGraphic*.  
<https://www.biographic.com/posts/sto/betting-on-conservation>

2006 · Tomorrow is too soon. *California Wild Magazine*.

#### *Blogs*

Roopnarine's Food Weblog. <https://proopnarine.wordpress.com/>

October 25, 2023