



Smithsonian

## CAMILLA ALVES SOUTO, MSc, PhD

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National Museum of Natural History, Smithsonian Institution  
10th and Constitution Ave, NW, Washington, DC 20560

### APPOINTMENTS

- 2020– Deep Time Peter Buck Fellow**, National Museum of Natural History (NMNH)  
75% Research; 25% Education and Outreach
- 2019 Lecturer**, Integrative Biology Department, University of California, Berkeley (UCB)

### EDUCATION

- 2018 PhD** Integrative Biology, **University of California, Berkeley**, U.S.A.  
Supervisor: Charles R. Marshall, PhD
- 2012 MSc** Animal Diversity: Zoology, **Federal University of Bahia**, Brazil (UFBA)  
Supervisors: Carla Menegola, PhD and Rich Mooi, PhD
- 2008 BSc** Biology: Environmental Resources, **Federal University of Bahia**, Brazil (UFBA)  
Supervisor: Orane Falcão de Souza Alves, PhD

### RESEARCH INTERESTS

Invertebrate paleobiology and zoology, especially of echinoderms; phylogenetic systematics; paleobiogeography; macroevolution; taxonomy.

### PEER-REVIEWED PUBLICATIONS

#### In Press

12. \*Martins L, \***Souto C**, Tavares M (in press) Exploring the macrostructural anatomy of dendrochirotid sea cucumber's (Echinodermata) calcareous rings under micro-computed tomography ( $\mu$ CT) and its bearing on phylogeny. *Journal of Anatomy*; 18 pages, 7 figures and 2 tables. Available [Here](#)

#### Published

11. \*Martins L, \***Souto C**. 2020. Taxonomy of the Brazilian Apodida (Holothuroidea), with the description of two new genera. *Marine Biology Research*, 16(4), 219–255. Available [Here](#)
10. **Souto C**, Mooi R, Martins L, Menegola C, Marshall CR. 2019. Homoplasy and extinction: the phylogeny of the cassidulid echinoids (Echinodermata). *Zoological Journal of the Linnean Society*, 187, 622–660. Available [Here](#)
9. Martins L, **Souto C**. 2019. Taxonomic remarks on *Havelockia* and *Thyone* (Holothuroidea: Dendrochirotida), with descriptions of two new species from the Brazilian coast. *Journal of the Marine Biological Association of the United Kingdom*, 99, 1127–1134. Available [Here](#)

8. **Souto C**, Martins L. 2018. Synchrotron micro-CT scanning leads to the discovery of a new genus of morphologically conserved echinoid (Echinodermata: Cassiduloidea). *Zootaxa*, 4457(1), 70–92. Available Here
7. **Souto C**, Martins L, Menegola C. 2018. Giving up on elaborate dermal ossicles: a new genus of ossicleless Apodida (Holothuroidea). *Journal of the Marine Biological Association of the United Kingdom*, 98(7), 1685–1688. Available Here
6. \*Martins L, \***Souto C**, Braga J, Tavares M. 2018. Echinoidea and Holothuroidea (Echinodermata) of the Trindade & Martin Vaz Archipelago, off Brazil, with new records and remarks on taxonomy and species composition. *Journal of the Marine Biological Association of the United Kingdom*, 98(3), 521–555. Available Here
5. \*Martins L, \***Souto C**. 2015 Taxonomic review of four western Atlantic dendrochirotids (Holothuroidea) with the description of a new Brazilian cucumariid species and designation of neotypes. *Zootaxa*, 3919(2), 362–374. Available Here
4. \*Martins L, \***Souto C**, Magalhães WF\*, Alves OFS, Rosa I, Sampaio CLS. 2012. Echinoderm harvesting in Todos-os-Santos Bay, Bahia state, Brazil: the aquarium trade. *Sitentibus*, 12, 53–59. Available Here
3. Martins L, **Souto C**, Menegola C. 2012. A new genus and new species of Sclerodactylidae (Holothuroidea) from the Southwestern Atlantic coast. *Zootaxa*, 3506, 54–62. Available Here
2. Martins L, **Souto C**, Menegola C. 2012. First record of *Holothuria (Theelothuria) princeps* and *Thyone pawsoni* [Echinodermata: Holothuroidea] in the South Atlantic Ocean. *Marine Biodiversity Records*, 5, e98. Available Here
1. **Souto C**, Manso CLC, Martins LR. 2011. Rediscovery and redescription of *Cassidulus infidus* (Echinoidea: Cassidulidae) from Northeastern Brazil. *Zootaxa*, 3095, 39–48. Available Here

#### Manuscripts Submitted (available upon request)

‡Cunha R, Martins L, Menegola C, **Souto C** (in review) Taxonomy of the sea stars (Echinodermata: Asteroidea) from Bahia State, including ontogenetic variations and an illustrated key to the Brazilian species. Submitted to *Zootaxa* in October 2020; 61 pages, 35 plates.

#### Book Chapter

**Souto C\***, Martins L\*. 2017. Os equinodermos. In: Nunes JMC, de Matos MRB (eds.) *Litoral Norte da Bahia: caracterização ambiental, biodiversidade e conservação*. Salvador, EDUFBA, p. 303–315. Available Here

#### AWARDS, GRANTS, SCHOLARSHIPS

2020	Smithsonian Institution Peter Buck Postdoctoral Fellowship Award <b>\$134,000</b>
2020, 2016	Systematics Research Fund <b>£1,967</b>
2018	Dissertation Completion Award, IB-UCB <b>\$2,500</b>
2017	Emily H. and Harold E. Vokes Grants-in-Aid <b>\$500</b>
2017	Robert and Nancy Beim Endowed Graduate Field Research Fund <b>\$1,750</b>
2017, 2014	North American Echinoderm Conference Scholarship <b>\$200</b>
2016–2017	Graduate Division, Conference Travel Grant <b>\$2,400</b>

- 2016 UCMP Annie Alexander Fund **\$20,000**  
 2016 NHM Invertebrate Paleontology Collections Study Grant **\$400**  
 2016, 2015 Summer Research and Travel Award **\$6,050**  
 2016 Synchrotron X-Ray  $\mu$ CT, Lawrence Berkeley National Laboratory (9 shifts at Beamline 8.3.2.)  
 2015 Sigma Xi Student Research Award, Berkeley Chapter **\$500**  
 2014–2017 GRAC Research and Travel Fund **\$1,650**  
 2014–2017 Palmer Research Fund **\$6,850**  
 2014–2016 UCMP graduate student travel award **\$2,500**  
 2014 Leeper Research Fund **\$1,700**  
 2014 CNPQ Postgraduate fellowship (fully funded PhD fellowship; declined).  
 2010 First place in the selection process for the MSc Program in Animal Diversity, UFBA.  
 Bahia State Research Support Foundation Fellowship Award **\$14,400**

### Teaching honors, awards and development

- 2018 Certificate of Teaching Excellence Award, IB–UCB  
 2017 Summer Institute for Preparing Future Faculty, Graduate Division, UCB  
 2017 Certificate in Teaching and Learning in Higher Education, Graduate Division, UCB  
 2016 Outstanding Graduate Student Instructor Award, Graduate Division, UCB, **\$250**

## TEACHING EXPERIENCE

### Instructor of Record

- 2018, 2019 Invertebrate Zoology (UCB, IB 103LF), 5 units  
 2019 Marine Biology (UCB, IB 108), 4 units

### Graduate Student Instructor (2012–2017, UCB)

- Biology and Geomorphology of Tropical Islands (IB 157LF), 13 units, 1 semester  
 General Biology (BIO 1B), 4 units, 2 semesters  
 Oceans (C82), 3 units, 2017, 1 semester  
 Origins: From the Big Bang to the Emergence of Humans (C13), 4 units, 2 semesters  
 Paleobiological Perspectives on Ecology and Evolution (IB 113L), 4 units, 4 semesters

### Guest Lectures

- 2016 “Morphometrics”, for undergraduate students, UCB.  
 2009, 2010 “Phylum Echinodermata: collecting methods, curating and taxonomy”, for graduate students in Animal Diversity, UFBA  
 2009, 2010 “Systematics and biology of the Echinodermata”, for undergraduate students, UFBA.

### Long-Term Mentorship

- 2020 Rosana F da Cunha, Zoology Museum, University of São Paulo, Brazil.  
 2013–2014 Lauren K Miller, Integrative Biology Department, UCB.  
 2011–2012 Alisson Santana, Biology Department, UFBA.  
 2010–2012 Rosana F da Cunha, Biology Department, UFBA.

## WORKSHOPS, TALKS AND CONFERENCE PRESENTATIONS

### Workshop

2011 **Integrative Taxonomy Workshop**, II Summer Course in Animal Diversity, UFBA, for undergraduate students, 16h

### Invited Talks

2020 NoBones Series, Smithsonian National Museum of Natural History, Washington, U.S.A.  
 2020 III Echinoderm Symposium, Brazilian Congress of Zoology, Águas de Lindoia, Brazil.  
 2019 University of California, Museum of Paleontology, Berkeley, U.S.A.

### Conference Presentations (list available upon request)

>35 Abstracts presented at scientific meetings since 2006 - the most relevant are:

2021 **Souto C**, Martins L. The macrostructural anatomy and functional morphology of dendrochirotid sea cucumber's (Echinodermata) calcareous rings. The Society for Integrative and Comparative Biology Virtual Annual Meeting 2021.  
 2019 **Souto C**. Dispersal, endemism and extinction shaped the cassiduloid's evolutionary history. Geological Society of America Meeting 2019, Phoenix, U.S.A.  
 2019 **Souto C**. Why is dating morphological phylogenies a posteriori so challenging? NorCal Paleo 2019, Berkeley, U.S.A.  
 2017 **Souto C**. Micro-CT scanning as a tool to discover species biodiversity. 8<sup>th</sup> North American Echinoderm Conference, Worcester, U.S.A.  
 2016 **Souto C**, Chang, L. Estimating echinoid diversity trajectories using data from large databases: pitfalls and evolutionary trends. 3<sup>rd</sup> Latin-American Echinoderm Conference, San Jose, Costa Rica.

### Scientific Event Organizer

2015–2016 Geometric Morphometrics Workshop, co-organizer, UCB, 25 participants/year  
 2011 II Summer Workshop in Animal Diversity, co-organizer, UFBA, 100 participants  
 2005–2006 Week of Biology, coordinator, UFBA, 700 and 1000 participants respectively

## ACADEMIC SERVICE AND OUTREACH EXPERIENCE

### Efforts towards diversity inclusion in science

2020 **Workshop facilitator** in workshop “Fostering Critical Conversations about Equity in the Sciences: The Bearded Lady Project”, American Women of Science: Recovering History, Defining the Future virtual symposium, NMNH.  
 2020 **Interviewed** for the series “A Palaeontologist abroad” by the Palaeontology Newsletter [Available Here](#)  
 2020 **Speaker** in panel about my career path for undergraduates from Bahrain, NMNH.  
 2018 **Designer and teacher** of workshop for female 5<sup>th</sup>–8<sup>th</sup> graders, Expanding Your Horizons Conference, UCB.  
 2018 **Volunteer facilitator** in activities with LiMPETS: Long-term monitoring program and experiential training for students, San Francisco Bay Area, CA.  
 2018 **Translator** of education and outreach activity “Evolve or Perish” to Portuguese. Evolution of Terrestrial Ecosystems Program, NMNH. [Available Here](#)  
 2018 **Speaker** in panel about graduate school for international undergraduates, UCB.

- 2016 **Speaker** in panel about graduate school for international undergraduates, UCB.  
 2015 **Researcher** portrayed in the Bearded Lady Project. Available [Here](#)

### Efforts towards environment management and conservation

- 2015–present **Taxonomic specialist** for the Brazilian Fauna Taxonomic Catalog (CTFB), Brazilian Society of Zoology. Available [Here](#)  
 2019 **Member of committee** to evaluate the status of endangered Brazilian wildlife, The Chico Mendes Institute for Biodiversity Conservation, Brazil (ICMBio)  
 2006–2012 **Taxonomic specialist** for environmental consulting agencies, UFBA. Project coordinator: Marlene Peso, PhD

### Online science communication

- 2019 **Souto C.** Educational post “Stromatoporoids”. Available [Here](#)  
 2018 **Souto C.** Blog post “Russell Waines’ stromatoporoid collection”. Available [Here](#)  
 2017 **Souto C.** Blog post “Understanding the evolutionary history of the cassiduloid echinoids”. Available [Here](#)

### Online educational programs

- 2020 NMNH Fossil Friday webinar: “Living and fossil sea urchins”. Available [Here](#)

### Scientific enrichment seminars for NMNH volunteers

- Marine Paleobiology
- The Bearded Lady Project
- The Marine Mesozoic Revolution and the evolution of irregular sea urchins

### Organizer and participant of scientific exhibitions

- 2020 Expert is In at NMNH, Washington (2 events)  
 2016 California Academy of Science Nightlife, San Francisco (3 events)  
 2014–2018 CalDay at UC Museum of Paleontology, Berkeley (5 events)  
 2013 Bay Area Science Festival at AT&T Park, San Francisco  
 2008 National Week of Science and Technology: Evolution and Diversity, Brazil  
 2005–2008 Week of Biology, Brazil (3 events)

**Ad hoc peer-reviews (12 manuscripts):** Journal of Paleontology, Marine Biodiversity, Palaeontologia Electronica, Revista de Biología Tropical, Royal Society Open Science, Zootaxa.

## CURATORIAL PROFESSIONAL EXPERIENCE

- 2017 **Taxonomic Specialist**, EPICC project, UC Museum of Paleontology, Berkeley.  
 Supervisor: Erica Clites, MSc  
 2014 **Collections Assistant**, UC Museum of Paleontology, Berkeley.  
 Supervisor: Erica Clites, MSc  
 2013 **Collections Assistant**, UC Museum of Paleontology, Berkeley.  
 Supervisor: Mark Goodwin, PhD  
 2006–2012 **Curatorial Assistant**, Museum of Zoology, UFBA.  
 Supervisors: Orane F.S. Alves, PhD and Carla Menegola, PhD

## RESEARCH AT NATURAL HISTORY COLLECTIONS

**Long-term affiliation:** **MZUFBA** Zoology Museum of the UFBA, Salvador, Brazil (2006–2012); **CAS** California Academy of Sciences, San Francisco, U.S.A. (2011–2016); **UCMP** University of California, Museum of Paleontology, Berkeley, U.S.A. (2011–2019); **NMNH** National Museum of Natural History, Washington, U.S.A. (2020–present).

**Short-term visits (2007–2017):** **AM** Australian Museum, Sydney, Australia; **FLMNH** Florida Museum of Natural History, Gainesville, U.S.A.; **LACM** Los Angeles County, Natural History Museum, U.S.A.; **MCZ** Museum of Comparative Zoology, Harvard, Cambridge, U.S.A.; **MNHN** National Museum of Natural History, Paris, France; **MNRJ** National Museum, Rio de Janeiro, Brazil; **MZUSP** Museum of Zoology, University of São Paulo, Brazil; **Naturalis** Biodiversity Center, Leiden, The Netherlands; **NHM-UK** Natural History Museum, London, United Kingdom; **NHMW** Natural History Museum, Vienna, Austria; **NMV** Museum Victoria, Melbourne, Australia; **UFISITAB** Echinoderm Collection, Federal University of Sergipe, Itabaiana, Brazil; **ZMB** Natural History Museum, Berlin, Germany; **ZUEC** Zoology Museum, Campinas State University, Brazil.

**Material examined through loans:** **MPEG** Museu Paraense Emílio Goeldi, Belém, Brazil; **MP** **MNHU** Museum of Natural History, Wrocław University, Poland; **NMB** Natural History Museum, Basel, Switzerland; **MHNG** National Museum of Natural History, Geneva, Switzerland; **YPM** Yale Peabody Museum of Natural History, New Haven, U.S.A.; **ZMUC** Zoological Museum, University of Copenhagen, Denmark.

## ECHINODERM TAXA NAMED

<i>Chantalia conandae</i>	Martins & Souto, 2020	New genus and new species
<i>Yemoja</i>	Martins & Souto, 2020	New genus
Eurhodiidae	Souto et al., 2019	New family
<i>Havelockia oranae</i>	Martins & Souto, 2019	New species
<i>Thyone waltinboi</i>	Martins & Souto, 2019	New species
<i>Cassidulus briareus</i>	Souto & Martins, 2018	New species
<i>Gymnopipina ikamiaba</i>	Souto & Martins, 2018	New genus and new species
<i>Kassandrina</i>	Souto & Martins, 2018	New genus
<i>Cucumaria solangeae</i>	Martins & Souto, 2015	New species
<i>Coronatum baiensis</i>	Martins & Souto, 2012	New genus and new species

## TECHNICAL SKILLS

### Data Analysis

- 2017 Workshop in Applied Phylogenetics, University of California, Davis
- 2017 Digital Data in Paleontological Research Workshop, UCB, sponsored by IDIGBIO
- 2015 Intensive Workshop in Analytical Palaeobiology, Macquarie University, Sydney, Australia
- 2013 Geometric Morphometrics Workshop, Integrative Biology Department, UCB
- 2011 Workshop in Cladistics, Zoology Department, UFBA

### **Technique and Equipment Training**

- 2018 DNA Library Preparation, Evolutionary Genetics Lab, UCB
- 2016 Data Carpentry Workshop: OpenRefine, R and SQL, UCMP
- 2016 Synchrotron-based Hard X-ray Micro-Tomography, Advance Light Source, Lawrence Berkeley National Laboratory, Berkeley
- 2016 Hitachi TM-1000 Scanning Electron Microscope, Electron Microscope Lab, UCB
- 2010 JEOL JSM-6390LV Scanning Electron Microscope, Gonçalo Moniz Institute, Oswaldo Cruz Foundation (FIOCRUZ), Salvador, Brazil

### **LANGUAGES**

Portuguese (native speaker), English (fluent), Spanish (conversational).

### **SOCIETY MEMBERSHIPS**

Paleontological Society, NMNH Senate of Scientists, Society of Systematic Biologists, The Paleontological Association, The Society for Integrative & Comparative Biology, The Systematics Association.