

Jessica Goodheart

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EDUCATION

University of Maryland, College Park

Doctor of Philosophy, Biological Sciences

exp. December 2017

Dissertation Title: Phylogenomics of Cladobronchia and the evolution of nematocyst sequestration (Advisors – Dr. Michael Cummings and Dr. Allen Collins)

California State Polytechnic University, Pomona

Master of Science, Biological Sciences

June 2013

Thesis Title: Sea slug systematics: using molecular and morphological tools to infer species relationships in opisthobranchs (Advisor – Dr. Ángel Valdés)

California State Polytechnic University, Pomona

Bachelor of Science, Biological Sciences

June 2011

PROFESSIONAL EXPERIENCE

Peter Buck Pre-Doctoral Fellow

September 2015 - Present

Department of Invertebrate Zoology
Smithsonian National Museum of Natural History (NMNH)

Graduate Student Summer Research Fellow

June 2015 - August 2015

Department of Biology, University of Maryland, College Park (UMD)

PUBLICATIONS

Peer-Reviewed Publications

6. **Goodheart, J.A.** 2017. Insights into the systematics, phylogeny and evolution of Cladobronchia (Gastropoda: Heterobranchia). *American Malacological Bulletin* 35: 73-81. DOI: 10.4003/006.035.0111
5. **Goodheart, J.A.** & Bely, A.E. 2017. Sequestration of nematocysts by divergent cnidarian predators: mechanism, function, and evolution. *Invertebrate Biology* 136: 75-91. DOI: 10.1111/ivb.12154
4. **Goodheart, J.A.**, Ellingson, R.A., Vital, X.G., Galvão Filho, H.C., McCarthy, J.B., Medrano, S.M., Bhave, V.J., García-Méndez, K., Jiménez, L.M., López, G., Hoover, C.A., Awbrey, J.D., De Jesus, J.M., Gowacki, W., Krug, P.J. & Valdés, A. 2016. Identification guide to the heterobranch sea slugs (Mollusca: Gastropoda) from Bocas del Toro, Panama. *Marine Biodiversity Records* 9: 56. DOI: 10.1186/s41200-016-0048-z.
3. **Goodheart, J.A.**, Bazinet, A.L., Collins, A.G. & Cummings, M.P. 2015. Relationships within Cladobronchia (Gastropoda: Nudibranchia) based on RNA-Seq data: An initial investigation. *Royal Society Open Science* 2: 150196. DOI: 10.1098/rsos.150196.
2. **Goodheart, J.**, Camacho-Garcia, Y., Padula, V., Schrödl, M., Cervera, J.L., Gosliner, T.M. & Valdés, A. 2015. Systematics and biogeography of *Pleurobranchus* Cuvier, 1804 sea slugs (Heterobranchia: Nudipleura: Pleurobranchidae). *Zoological Journal of the Linnean Society* 174: 322-362. DOI: 10.1111/zoj.12237.
1. **Goodheart, J.** & Valdés, A. 2013. Re-evaluation of the *Doriopsilla areolata* Bergh, 1880 (Mollusca: Opisthobranchia) subspecies complex in the eastern Atlantic Ocean and its relationship to South African *Doriopsilla miniata* (Alder & Hancock, 1864) based on molecular

data. *Marine Biodiversity* 43: 113-120. DOI: 10.1007/s12526-012-0136-1.

Technical Reports

1. **Goodheart, J.A.**, Bazinet, A.L., Collins, A.G. & Cummings, M.P. 2015. Phylogeny of Cladobranchia (Gastropoda: Nudibranchia): a total evidence analysis using DNA sequence data from public databases. *Digital Repository at the University of Maryland*. DOI: 10.13016/M-20K9X.

Publications in Progress

2. **Goodheart, J.A.**, Bazinet, A.L., Valdés, A., Collins, A.G. & Cummings, M.P. *Submitted*. Feeding follows phylogeny: prey choice and relationships in Cladobranchia.
1. **Goodheart, J.A.**, Bleidißel, S., Strong, E.E. & Wägele, H. In prep. Comparative morphology and evolution of the cnidosac in Cladobranchia (Gastropoda: Heterobranchia: Nudibranchia).

Non Peer-Reviewed Publications

2. **Goodheart, J.A.** 2017. Heterobranch sea slugs of Bocas del Toro, Panama. *American Conchologist* 45: 17-19.
1. **Goodheart, J.A.** 2015. Sea slug thieves: A nudibranch defense strategy. *American Conchologist* 43: 34-36.

GRANTS & FELLOWSHIPS

2017

Postdoctoral Research Fellowship in Biology, National Science Foundation, \$138,000
Ann G. Wylie Dissertation Fellowship, The Graduate School, UMD, \$15,000

2016

International Graduate Research Fellowship, UMD, \$2,000
Global Genome Initiative Exploratory Science Award, Smithsonian Institution, \$19,393
Eugenie Clark Fellowship, Department of Biology, UMD, \$2,500

2015

Graduate Summer Research Fellowship, UMD, \$5,000
The Graduate School Dean's Fellowship, UMD, \$5,000
Conchologists of America Research Grant, \$1,430
Eugenie Clark Travel Award, Department of Biology, UMD, \$1,000
Smithsonian Peter Buck Predoctoral Fellowship, \$72,000

2014

Graduate Student Research Award from the Society of Systematic Biologists, \$2,500
Biology Department Student Travel Grant, UMD, \$430
Research Opportunity Fund, Smithsonian Institution, \$500
Goldhaber Travel Grant, Graduate School, UMD, \$500
Conchologists of America Research Grant, \$1,320
Smithsonian Graduate Student Fellowship, \$6,500

2013

The Graduate School Dean's Fellowship, UMD, \$5,000
Cal Poly Pomona Biological Sciences Department Student Research Grant, \$715

AWARDS & HONORS	Student Research Award , BEES Student Taskforce, UMD	2017
	Merit Award , Biological Sciences Graduate Program, UMD	2016
	Merit Award , Biological Sciences Graduate Program, UMD	2015
	Chuck Bayless Scholarship , Cal Poly Pomona Biology Dept.	2013
	Vernon Gregory Memorial Scholarship , Cal Poly Pomona Biology Dept.	2013
	Ed Roche Research Assistant Scholarship , Cal Poly Pomona Biology Dept.	2012

PROFESSIONAL AFFILIATIONS & SERVICE	Referee	
	For articles submitted to <i>Marine Biodiversity</i> , <i>Peer J</i> , <i>Marine Research</i> & <i>Journal of Conchology</i>	
	Member	
	The Society for Integrative and Comparative Biology (SICB), Sigma Xi, Society of Systematic Biologists, Systematics Association, American Malacological Society	
	Symposia organized	
	Meeting of the Western Society of Malacologists (June 2013), Opisthobranchs	
	Committee Member	
	Merit Award Committee, Biological Sciences Graduate Program (BISI), UMD, 2017	
	Ecology Faculty Search, Graduate Student Representative, UMD, 2016	
	Nominating Committee for DPCB Program Officer, SICB, 2016	
	Additional Service	
	Co-President of the Behavior, Ecology, Evolution and Systematics Student Taskforce (BEESst), UMD Biological Sciences Graduate program (BISI) (2016-2017)	
	BEESst Research/Lois Reed Service Award committees, 2014,2015 & 2017	
	Vice President for BEESst, UMD BISI (2015-2016)	

PROFESSIONAL DEVELOPMENT	Bioinformatics Course , University of Tuebingen, Germany	July 2016
	Sea Slug Taxonomy Course , Smithsonian Tropical Research Institute, Panama	July 2015
	Phylogenomics Course , Lund University, Sweden	May 2014

TEACHING EXPERIENCE	Graduate Teaching Assistant	September 2013 - June 2015
	Department of Biology, University of Maryland, College Park, MD	
	<ul style="list-style-type: none"> Instructor for Principles of Biology II Laboratory (Ecology and Evolution) 	
	Graduate Teaching Assistant	May 2014 - February 2016
	Department of Biology, California State Polytechnic University, Pomona, CA	
	<ul style="list-style-type: none"> Instructor for Biometrics Laboratory 	

MENTORING	Emma Rebour , High School Student, YES! at NMNH	Summer 2016
	Maiss Mohammed , High School Student, YES! at NMNH	Summer 2016

PRESENTATIONS	Invited Talks	
	2. Goodheart, J.A. , Bazinet, A.L., Collins, A.G. & Cummings, M.P. Phylogenomics of Cladobranchia (Gastropoda: Heterobranchia: Nudibranchia) and the evolution of nematocyst se-	

questration. *American Malacological Society Meeting* (June 2017) ***This talk was awarded the Constance Boone Student Presentation Award.**

1. **Goodheart, J.A.**, Bazinet, A.L., Collins, A.G. & Cummings, M.P. Phylogenomics of Cladobranchia (Gastropoda: Heterobranchia: Nudibranchia). *American Malacological Society Meeting* (August 2015),

Oral Presentations

10. **Goodheart, J.A.**. The evolution of nematocyst sequestration in nudibranchs. *Mid-Atlantic Malacologists Annual Meeting* (March 2017)
9. **Goodheart, J.A.**, Bazinet, A.L., Valdés, A., Collins, A.G. & Cummings, M.P. Eat, Prey, Evolve: Phylogenetic relationships and diet in Cladobranchia (Gastropoda: Heterobranchia). *Society for Integrative and Comparative Biology* (January 2017)
8. **Goodheart, J.A.**, Bazinet, A.L., Collins, A.G. & Cummings, M.P. Phylogenomics of Cladobranchia (Gastropoda: Heterobranchia: Nudibranchia). *Society for Integrative and Comparative Biology* (January 2016)
7. **Goodheart, J.A.**, Bazinet, A.L., Collins, A.G. & Cummings, M.P. Phylogenomics of Cladobranchia (Gastropoda: Heterobranchia: Nudibranchia) and the evolution of nematocyst sequestration. *Mid-Atlantic Malacologists Annual Meeting* (March 2014)
6. **Goodheart, J.A.** & Valdés, A. Biogeography, cryptic diversity and molecular evolution of *Pleurobranchus* sea slugs. *Meeting of the Western Society of Malacologists* (June 2013) ***This talk was awarded a Presentation Award.**
5. **Goodheart, J.A.** & Valdés, A. Biogeography, cryptic diversity and molecular evolution of *Pleurobranchus* sea slugs. *Southern California Academy of Sciences Annual Meeting* (May 2013)
4. **Goodheart, J.A.** & Valdés, A. Biogeography, cryptic diversity and molecular evolution of *Pleurobranchus* sea slugs. *California State Polytechnic University, Pomona Student Research Conference* (March 2013)
3. **Goodheart, J.** Report on the Biodiversity Research Expedition to Madang, Papua New Guinea. *Southern California Unified Malacologists Meeting* (January 2013)
2. **Goodheart, J.A.** & Valdés, A. Is there molecular support for the *Doriopsilla areolata* Bergh, 1880 (Mollusca: Opisthobranchia) subspecies scheme in the eastern Atlantic Ocean? *Joint Meeting of the Western Society of Malacologists and International Workshop on Opisthobranchs* (June 2012)
1. **Goodheart, J.A.** & Valdés, A. Biogeography, cryptic diversity and molecular evolution of Pleurobranchidae sea slugs. *Southern California Unified Malacologists Meeting* (January 2012)

Poster Presentations

1. **Goodheart, J.**, Camacho-Garcia, Y., Padula, V., Schrödl, M., Cervera, J.L., Gosliner, T.M. & Valdés, A. Biogeography, cryptic diversity and molecular evolution of *Pleurobranchus* sea slugs. *Smithsonian Botanical Symposium* (May 2014)

- public interaction at a booth in Q?rius at NMNH

Nudibranch Defenses, Blue Planet Scuba, Washington, D.C. February 2016

- public presentation to SCUBA divers

Sea Slug Pirates, Teen SciCafé, SI-NMNH January 2016

- discussion with teens from local high schools

Events

Maryland Day, Public event at the University of Maryland, College Park April 2014-2017

- Committee member and volunteer (2014-2017)

Blog Posts

Contributor to SI-NMNH Invertebrate Zoology Blog *No Bones* 2013-present
 Contributor to SI-NMNH *Ocean Portal* 2014-present

TECHNOLOGY SKILLS

Programming Languages

Python (data processing and handling), R (phylogenetic comparative analyses and data handling), L^AT_EX(learning)

Software Used

FastQC, Trinity, Garli, MrBayes, HaMStR, Geneious, Bowtie 2, Arlequin, multiple R packages (including APE & Phytools)

REFERENCES

Michael P. Cummings, PhD (PhD Advisor)

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Allen G. Collins, PhD (PhD Advisor)

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National Systematics Laboratory

Smithsonian Institution

PO Box 37012, MRC 163

Washington, DC 20013-7012, USA

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Alexandra Bely, PhD (Instructor & Collaborator)

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