

# DIANA JESSIE RENNISON (Née Windsor)

Assistant Professor

Division of Biological Sciences

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## PROFESSIONAL APPOINTMENTS

11.2019 – Present

Assistant Professor, Division of Biological Sciences, Ecology, Behaviour & Evolution Section, University of California San Diego.

06.2018 – 11.2019

Marie Skłodowska-Curie Fellow, Evolutionary Ecology, University of Bern.

Supervisor: Catherine L. Peichel

10.2016 – 06.2018

Postdoctoral Fellow, Evolutionary Ecology, University of Bern.

Supervisor: Catherine L. Peichel

## EDUCATION

01.01.2011 – 26.07.2016

Doctor of Philosophy, Zoology, University of British Columbia.

Supervisor: Dolph Schluter

Dissertation: Detecting the drivers of divergence: identifying and estimating natural selection in threespine stickleback.

01.09.2008 – 01.11.2010

Masters of Science, Biology, University of Victoria.

Supervisor: John S. Taylor

Thesis: Spatial characterization of visual opsin gene expression in the guppy.

01.09.2004 – 30.04.2008

Bachelors of Science Honours, Biology, University of Victoria.

Supervisor: John S. Taylor

Thesis: Opsin gene duplication and divergence in Trinidadian guppies.

## PEER-REVIEWED PUBLICATIONS

25. **Rennison, D.J.\***, K.E. Delmore\*, K.M. Samuk, G.L. Owens, & S.E. Miller. Parallel selection and geographic proximity predict shared patterns of genome-wide differentiation after colonization of novel environments. \*co-first authors *American Naturalist* In Press.
24. **Rennison, D.J.**, S.M. Rudman, & D. Schluter. Genetics of adaptation: experimental test of a biotic mechanism driving divergence in traits and genes. *Evolution Letters* In Press.  
\* Featured in the book "Improbable Destinies: Fate, Chance and the Future of Evolution" by J.B. Losos.
23. **Rennison, D.J.**, Y.E. Stuart, D.I. Bolnick, & C.L. Peichel. Ecological factors and morphological traits are associated with repeated genomic differentiation between lake and stream stickleback. *Philosophical Transactions of the Royal Society B*. 374:20180241.
22. Reyes-Contreras, M.\* , G. Glauser, **D.J. Rennison**, & B. Taborsky. 2019. Early-life manipulation of cortisol and its receptor alters stress axis programming and social competence. *Philosophical Transactions of the Royal Society B*. 374:20180119. \*graduate student trainee
21. Bolnick, D.I., R.D.H. Barrett, K. Oke, **D.J. Rennison**, & Y.E. Stuart. 2018 (Non)Parallel Evolution. *Annual Reviews of Ecology, Evolution & Systematics*. 49: 303-330.
20. Gygax, M.\* , A.K. Rentscha\*, S.M. Rudman, & **D.J. Rennison**. 2018. Differential predation alters pigmentation in threespine stickleback. *Journal of Evolutionary Biology*. 31:1589-1598. \*graduate student trainees.
19. Brock, C., **D.J. Rennison**., T. Veen, & D.I. Bolnick. Opsin expression predicts male nuptial color in threespine stickleback. *Ecology and Evolution*. 8:7095-7102.
18. Samuk, K.M., J. Xue\*, & **D.J. Rennison**. 2018. Exposure to predators does not lead to the evolution of larger brains in experimental populations of threespine stickleback. *Evolution*. 72:916-929. \*undergraduate trainee.
17. Samuk, K.M., G.L. Owens, K.E. Delmore, S.E. Miller, **D.J. Rennison**, & D. Schluter. 2017. Gene flow and selection interact to promote adaptive divergence in regions of low recombination. *Molecular Ecology*. 26:4378-4390.  
\* Faculty of 1000 recommended read
16. Veen, T., C. Brock, **D.J. Rennison**, & D.I. Bolnick. 2017. Fine scale tuning of the visual system to a depth gradient in threespine stickleback. *Molecular Ecology*. 26:4339-4350.
15. Owens, G.L & **D.J. Rennison**. 2017. Evolutionary ecology of opsin gene sequence, expression and repertoire. *Molecular Ecology*. 26:1207-1210. (Invited perspective)
14. Rudman, S.M., J. Heavyside, **D.J. Rennison**, & D. Schluter. 2016. Piscivore addition causes a trophic cascade within and across ecosystem boundaries. *Oikos*. 125:1782-1789.
13. **Rennison, D.J.**, G.L. Owens, N. Heckman, D. Schluter, & T. Veen. 2016. Rapid adaptive evolution of colour vision in the threespine stickleback radiation. *Proceedings of the Royal Society B*. 283:20160242.
12. Miller, S.E., K.M. Samuk, & **D.J. Rennison**. 2016. An experimental test of predation's effect upon behaviour and trait correlations in threespine stickleback. *Biological Journal of the Linnean Society*. 119:117-125.

11. **Rennison, D.J.**, K. Heilbron\*, R.D.H. Barrett, & D. Schluter. 2015. Discriminating selection on lateral plate phenotype and its underlying gene, Ectodysplasin, in threespine stickleback. *American Naturalist*. 185:150-156. \*undergraduate co-author  
\* Faculty of 1000 recommended read
10. Andrew, R., A.Y.K. Albert, S. Renaut, **D.J. Rennison**, D. Bock, & T.H. Vines. 2015. Assessing the reproducibility of discriminant function analyses. *PeerJ*. 3:e1137.
9. Seehausen, O., R.K. Butlin, I. Keller, C.E. Wagner, J.W. Boughman, P.A. Hohenlohe, C.L. Peichel, G-P. Saetre, C. Bank, Å Brännström, A. Brelsford, C. Clarkson, F. Eroukhmanoff, J.L. Feder, M. Fischer, A.D. Foote, P. Franchini, C.D. Jiggins, F.C. Jones, A.K. Lindholm, K. Lucek, M.E. Maan, D.A. Marques, S.H. Martin, B. Matthews, J.I. Meier, M. Möst, M.W. Nachman, E. Nonaka, **D.J. Rennison**, J. Schwarzer, E.T. Watson, A.M. Westram, & A. Widmer. 2014. Genomics and the origin of species. *Nature Reviews Genetics*. 15:176-192.
8. Vines, T.H., A.Y.K. Albert, R. Andrew, F. Débarre, D. Bock, M.T. Franklin, K.J. Gilbert, J.-S. Moore, S. Renaut, & **D.J. Rennison**. 2014. How does the availability of research data change with time since publication? *Current Biology*. 24:1-4.  
\* Faculty of 1000 recommended read
7. Vines, T.H., R. Andrew, D. Bock, M.T. Franklin, K.J. Gilbert, N.C. Kane, J.-S. Moore, B.T. Moyers, S. Renaut, **D.J. Rennison**, T. Veen, & S. Yeaman. 2013. The relative effectiveness of data archiving policies. *FASEB J*. 27.
6. **Rennison, D.J.**, G.L. Owens & J.S. Taylor. 2012. Opsin gene duplication and divergence in ray-finned fish. *Molecular Phylogenetics and Evolution*. 62:986-1008.
5. Owens, G.L., **D.J. Rennison**, W.T. Allison, & J.S. Taylor. 2012. In the four-eyed fish (*Anableps anableps*), the regions of the retina exposed to aquatic and aerial light do not express the same set of opsin genes. *Biology Letters*. 8:86-89.
4. Gilbert, K.J., R. Andrew, D. Bock, M.T. Franklin, N.C. Kane, J.-S. Moore, B.T. Moyers, S. Renaut, **D.J. Rennison**, T.H. Vines, T. Veen, & S. Yeaman. 2012. Recommendations for utilizing and reporting population genetic analyses: the reproducibility of population clustering using the program STRUCTURE. *Molecular Ecology*. 21:4925-4930.
3. **Rennison, D.J.**, G.L. Owens, W.T. Allison, & J.S. Taylor. 2011. Intra-retinal variation of opsin gene expression in the guppy (*Poecilia reticulata*). *Journal of Experimental Biology*. 214:3248-3254.
2. **Windsor, D.J.**, & G.L. Owens. 2009. The opsin repertoire of *Jenynsia onca*: A new perspective on gene duplication and divergence in livebearers. *BMC Research Notes*, 2:159.
1. Owens, G.L., **D.J. Windsor**, J. Mui, & J.S. Taylor. 2009. A fish eye out of water: Ten visual opsins in the four-eyed fish, *Anableps anableps*. *PLoS One* 4:e5970.

#### SUBMITTED or IN REVISION MANUSCRIPTS

1. **Rennison, D.J.\***, S.M Rudman\* & D. Schluter. Parallel differentiation of the gut-microbiome during ecological speciation. \*co-first authors In Review *Proceedings of the Royal Society B*.

## MANUSCRIPTS IN PREP

1. Steinel, N., J. Webber, Y.E. Stuart, **D.J. Rennison**, K.M. Shim., & D.I. Bolnick. Parallel-evolution of fibrosis in stickleback confers resistance to tapeworms at a severe cost to female fecundity.
2. **Rennison, D.J.**, & C.L. Peichel. The role of pleiotropy in determining the location of parallel evolution.

## GRANTS, FELLOWSHIPS AND AWARDS

### *Research Grants and Fellowships*

- Marie Skłodowska-Curie Individual Fellowship, European Commission, 2018 (€187,410)
- The Company of Biologists Research Grant, Society for Experimental Biology, 2015 (£270)
- Grant-In-Aid of Research, Society for Integrative and Comparative Biology, 2014 (\$1,000 USD)
- Zoology Graduate Fellowship, University of British Columbia, 2014 & 2015 (\$11,034 CDN)
- Four-Year Fellowship, University of British Columbia, 2011 (\$66,000 CDN)
- Rosemary Grant Graduate Student Research Grant, Society for the Study of Evolution, 2011 (\$2,500 USD)
- National Science and Engineering Research Council of Canada Post-Graduate Student Fellowship, 2010 (\$63,000 CDN)
- Max Plank Research School for Organismal Biology Fellowship, 2010 (€58,392) (Declined)
- Graduate Student Fellowship, University of Victoria, 2008 & 2009 (\$18,000 CDN)

### *Research Awards*

- Seal of Excellence in the Marie Skłodowska-Curie Individual Fellowships competition, European Commission, 2017 (Grant application received score of 91.2%).
- Excellence in Doctoral Research Award, Canadian Society for Ecology and Evolution, 2016 (\$750 CDN)
- University of British Columbia's nominee for the Cameron Award 2016 (Best Zoology Thesis in Canada).
- Raja Rosenbluth Award for Women in Biological Sciences, University of British Columbia, 2016 (\$5,000 CDN)
- King-Platt Award for Research, University of Victoria, 2009 (\$2,066 CDN)

### *Other Competitive Awards and Scholarships*

- 1<sup>st</sup> Place Poster Prize, University of British Columbia Zoology Graduate Symposium, 2015 (\$150 CDN)
- 2<sup>nd</sup> Place Poster Prize, Gordon Conference on Speciation, 2015 (\$150 USD)
- Department of Zoology Graduate Travel Award, University of British Columbia 2015 & 2013 (\$1000 CDN)
- Sponsored Studentship, Society for Molecular Biology and Evolution, 2015 (€300)
- Summer Institute in Statistical Genetics Scholarship, University of Washington, 2014 (\$1,275 USD)
- UK Rad Sequencing Meeting Student Presentation Award, 2011 (£110)

## TEACHING

- Teaching Assistant, University of Bern, R programming course, 2018
- Secondary Lecturer, University of Bern, Third Year Practical Course in Evolutionary Ecology & Second Year Course in Evolutionary Biology, 2017
- Secondary Lecturer, University of Bern, Third Year Practical Course in Evolutionary Ecology, 2016
- Teaching Assistant, University of British Columbia, Biostatistics 300, 2016
- Guest Lecturer, University of British Columbia, Genetics, Evolution, and Ecology 121, 2014
- Teaching Assistant, University of British Columbia, Evolutionary Ecology 418, 2014
- Teaching Assistant, University of British Columbia, Integrative Biology 342, 2011 & 2012
- Guest Lecturer, University of Victoria, Molecular Techniques 362, 2010
- Teaching Assistant, University of Victoria, Introductory Biology 190B, 2009
- Teaching Assistant, University of Victoria, Animal Behaviour 345, 2008, 2009 & 2010

## MENTORING AND SUPERVISION

- BSc Honours Student, Tim Ogi, 2018
- BSc Honours Student, Alexandra Zurlinden, 2018
- MSc Student, Maria Reyes Contreras, 2017
- MSc Student, Ana Rentsch, 2016
- MSc Student, Michelle Gyax, 2016
- Seven Undergraduate Summer Students, 2011 – 2016

## COLLABORATIVE RESEARCH INITIATIVES

- Member of the reproducibility working group, University of British Columbia, 2011 – 2015

- Member of the genetics and genomics of speciation working group, European Science Foundation, 2013

#### INVITED SEMINARS AND SYMPOSIA

- Clinical Neuroscience Meeting, Inselspital, Bern Switzerland, 2019
- Department of Biology, University of California San Diego, USA, 2018
- Polygenic Adaptation Symposia, University of Zurich, Zurich, Switzerland, 2017
- EAWAG Centre for Aquatic Research, Kastanienbaum, Switzerland, 2017
- Gordon Research Seminar on Speciation, Barga, Italy, 2017
- Canadian Society for Ecology and Evolution, St John's, Canada, 2016
- Department of Population Genetics, University of Bern, Bern, Switzerland, 2016
- Department of Biology, Simon Fraser University, Burnaby, Canada, 2016

#### CONTRIBUTED TALKS AND POSTERS

##### *Genomic and Ecological Factors Contributing to Parallel Genetic Evolution*

- European Society for Evolutionary Biology, Turku, Finland 2019
- Joint Congress on Evolutionary Biology, Montpellier, France 2018
- European Society for Evolutionary Biology, Groningen, Netherlands 2017
- Canadian Society for Ecology and Evolution, Victoria, Canada 2017
- Gordon Research Conference on Speciation, Ventura, USA, February 2015
- Society for Evolutionary Biology, Raleigh, USA, June 2014
- Joint Congress on Evolutionary Biology, Ottawa, Canada, July 2012
- UK RAD meeting, Edinburgh, Scotland, September 2011

##### *Genomics of Hybridization and Speciation*

- American Society of Naturalists, Asilomar, USA, January 2016
- Society for Molecular Biology and Evolution, Montpellier, France, May 2015

##### *Local Adaptation of Spectral Sensitivity*

- European Society for Evolutionary Biology, Lisbon, Portugal, July 2013

##### *Opsin Gene Duplication and Expression in Livebearers*

- Canadian Society for Ecology and Evolution, Banff, Canada, May 2011
- Society for Integrative & Comparative Biology, Seattle, USA, January 2010

- Society for Evolutionary Biology, Moscow, USA, July 2009
- Society for Molecular Biology and Evolution, Iowa City, USA, June 2009

## PROFESSIONAL ACTIVITIES

- Invited reviewer for 27 manuscripts: *Annals of the New York Academy of Sciences* (1), *Axios* (1), *Behavioural Ecology & Sociobiology* (1), *Biological Journal of the Linnean Society* (1), *Current Zoology* (2), *Ecology and Evolution* (2), *Environmental Biology of Fishes* (1), *Evolution* (2), *Evolution Letters* (1), *Heredity* (1), *Journal of Heredity* (1), *Journal of Molecular Endocrinology* (1), *Molecular Biology and Evolution* (1), *Molecular Ecology* (7), *Molecular Phylogenetics & Evolution* (1), *Nature Communications* (1), *Proceedings of the Royal Society B* (1), *Royal Society Open Science* (1).
- University of Bern Seminar Organization Committee, 2016, 2017, 2018 & 2019
- Poster Judge at the Biology17 Meeting of Swiss Biologists, 2017.
- University of British Columbia Graduate Student Representative Evolution Job Search Committee, 2015
- Organizer of the University of British Columbia Biodiversity Centre Evolution Lecture, 2013, 2014 & 2015
- Organizer for the University of British Columbia Evolution Discussion Group, 2012, 2013 & 2014
- Coordinator of the University of British Columbia Zoology Grad Student Mentorship Program, 2012
- Organizer for British Columbia Regional Ecology and Evolution Retreat, 2011 & 2012
- Student Presentation Judge at the SICB Meeting, 2010
- Organizer for University of Victoria Eco-Evo discussion group, 2009 & 2010
- Organizer for the University of Victoria Biology Graduate Student Symposium, 2009

## OUTREACH

- Contributor to the Canadian Society for Ecology and Evolution public research display, 2017
- Contributor to the Beaty Biodiversity Museum's 100 Treasures video project, 2016
- Outreach on species extinction for grade six class at Harry Hooge Elementary, 2016
- Fact checker for the Beaty Biodiversity Museum, 2015 & 2016
- Expert at the 'FestEVOLVE' and 'Ask an Expert' public outreach events at the Beaty Biodiversity Museum, 2015 & 2013
- Lecturer in the 'Way Cool' Biodiversity Lecture Series at the Beaty Biodiversity Museum, 2013
- Judge for the Vancouver Island Regional Science Fair, 2010