

Rylan Shearn

BIOLOGIST · BIOINFORMATICIAN · ILLUSTRATOR

UMR CNRS 5558 Biométrie et Biologie Evolutive, Université Claude Bernard Lyon 1, Bâtiment Mendel,
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Skills

Programming	Python, R, AWK, BASH, LaTeX
Computation	Bioinformatics, Phylogenetics, Statistics, Cluster Computing, GIS
Natural Sciences	Biology, Evolutionary Biology, Ecology, Environmental Science, Biodiversity, Taxonomy
Illustration	Scientific Concept Visualisation, Taxonomic Illustrations, Vector Illustration

Positions Held

CNRS - Centre National de la Recherche Scientifique

Lyon, France

Post-Doctoral Fellow - Agence nationale de la recherche (ANR)

2015 - Present

- Engineered a high performance workflow for use on compute clusters that detects Pseudo-Autosomal boundaries in sex chromosomes using next generation sequencing data.
- Detecting and comparing Pseudo-Autosomal boundaries in sex chromosomes of Primates in the context of theoretical variation in sexual antagonism.
- Investigating the sex determination system of *Ellobius* (Mole Vole) species with missing Y chromosomes using next generation sequencing data and recently assembled reference genomes.
- Co-authored a review of plant sex chromosome evolution, in particular contributing publication quality conceptual diagrams.

Centre for Ecosystem Management

Joondalup, Australia

Research Assistant

2011 - 2012

- Assisting with the study of Australian seed shrimp evolution and taxonomy using molecular and morphological techniques.
- Extraction of DNA from soil microbes to understand the role of soil heavy metal concentration/abundance in the development of bacterial antibiotic resistance.

MiWER (Mine Water and Environment Research Centre)

Joondalup, Australia

Research Assistant

2008 - 2011

- Organisation of experiment monitoring and maintenance, around full time university study.
- Construction and maintenance of experiments, ground and surface water quality monitoring, profiling of pit lake water quality, zooplankton collection, phytoplankton collection, diatom collection, macroinvertebrate collection and identification.

Wallis Drilling

Murrin Murrin, Australia

Driller's Assistant

2007

Orbit Fitness

Osborne Park, Australia

Supply officer & Delivery Driver

2001 - 2006

Education

PhD in Biological Sciences

Australia & Belgium

EDITH COWAN UNIVERSITY

2012-2015

- Thesis: Evolution, Systematics and Geographic Parthenogenesis of Australian *Ilyodromus* (Crustacea, Ostracoda)

BSc Hons 1A in Biological Sciences

Australia

EDITH COWAN UNIVERSITY

2011

- Thesis: *Bennelongia* (Ostracoda, Crustacea) and the evolution of temporary pool microfauna in Australia

BSc in Marine & Freshwater Biology

Australia

EDITH COWAN UNIVERSITY

2008-2010

- Above 80 percent course average

COMPUTER AIDED DRAFTING

Australia

SUBIACO TAFE

2004

- Education in engineering mathematics, surveying, computer aided drafting, OH&S, quality control, team building and communication

JOURNAL ARTICLES

- in prep **Shearn, R.**, Lecompte, E., Crouau-Roy, B. & Marais, G. (in prep), Lemurs have sex chromosomes with conserved pseudo-autosomal regions. *in prep* | **PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- in prep **Shearn, R.**, Collier, N., Krawiec, J., Doherty, T., Schön, I., Halse, S., Martens, K., & Koenders, A. (in prep), Changes in reproductive mode along a climatic gradient indicate lost sex in unpredictable habitats for *Ilyodromus* Sars, 1894 (Crustacea, Ostracoda, Cyprididae). *in prep* | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- Submitted Muyle, A., **Shearn, R.** & Marais, G. (Submitted) The evolution of sex chromosomes and dosage compensation in plants. *Genome Biology & Evolution - Submitted* | **ILLUSTRATED ALL FIGURES, ASSISTED WITH REVIEW AND EDITED MANUSCRIPT** |
- Submitted **Shearn, R.**, Schön, I., Martens, K., Halse, S., Krawiec, J. & Koenders, A. (Submitted), Patterns of genetic divergence in the *Ilyodromus amplicolis* lineage (Crustacea, Ostracoda), with descriptions of three new species. *Zootaxa - Submitted* | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- Submitted **Shearn, R.**, Koenders, A., Schön, I., Halse, S. & Martens, K. (Submitted) On the affinity of Isocypridinae and Herpetocypridinae, with redescrptions of four species of *Ilyodromus* Sars 1894 (Crustacea, Ostracoda). *Zootaxa - Submitted* | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- 2016 Knapp, C., Callan, A., Beatrice, A., **Shearn, R.**, Koenders, A. & Hinwood, A. (2016), Relationship between antibiotic resistance genes and metals in residential soil samples from Western Australia. *Environmental Science and Pollution Research* <http://doi.org/10.1007/s11356-016-7997-y> | **ASSISTED WITH RESEARCH AND EDITED MANUSCRIPT** |
- 2015 Schön, I., **Shearn, R.**, Martens, K., Koenders, A., & Halse, S. (2015), Age and origin of Australian *Bennelongia* (Crustacea, Ostracoda). *Hydrobiologia* 750(1):125-146 <http://dx.doi.org/10.1007/s10750-014-2159-z> | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- 2014 **Shearn, R.**, Halse, S., Koenders, A., Schön, I., & Martens, K. (2014), Redescrptions of six species of *Ilyodromus* Sars, 1894 (Crustacea, Ostracoda, Cyprididae) from New Zealand and Eastern Australia. *Zootaxa* 3878(2): 101-145 <http://doi.org/10.11646/zootaxa.3878.2.1> | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |
- 2012 **Shearn, R.**, Koenders, A., Halse, S., Schön, I., & Martens, K. (2012), A review of *Bennelongia* De Deckker & McKenzie, 1981 (Crustacea, Ostracoda) species from eastern Australia with the description of three new species. *European Journal of Taxonomy* 25:1-35 <http://doi.org/10.5852/ejt.2012.25> | **CONCEIVED IDEA, PERFORMED RESEARCH AND WROTE MANUSCRIPT** |

CONFERENCE ACTIVITY

Society of Australian Systematic Biologists Conference

Fremantle, Australia

SEMINAR

2015

- Koenders, A., **Shearn, R.**, Schön, I., Halse, S., & Martens, K. (2015), Patterns of genetic divergence in the *Ilyodromus amplicolis* lineage (Crustacea, Ostracoda).

17th International Symposium on Ostracoda

Rome, Italy

SEMINAR

2013

- **Shearn, R.**, Halse, S., Martens, K., Koenders, A. & Schön, I. (2013), Deciphering radiation patterns in Australian *Bennelongia* De Deckker & McKenzie 1981 (Crustacea, Ostracoda). In: *Naturlista Siciliana IV. 1.* 37(1) Rome, pp.365-367

17th International Symposium on Ostracoda

Rome, Italy

POSTER SESSION

2013

- **Shearn, R.**, Schön, I., Koenders, A., Halse, S. & Martens, K. (2013), Geographic parthenogenesis in Australian *Ilyodromus* Sars 1894 (Crustacea, Ostracoda). In: *Naturlista Siciliana IV. 1.* 37(1) Rome, pp.369-372

Fourth International Barcode of Life Conference

Adelaide, Australia

POSTER SESSION

2011

- **Shearn, R.**, Koenders, A., Halse, S., Schön, I., & Martens, K. (2011), Evolution and Diversity of *Bennelongia* (Crustacea, Ostracoda) in Australia.

Tenth Invertebrate Biodiversity and Conservation / Society of Australian Systematic Biologists Conference

Melbourne, Australia

POSTER SESSION

2011

- **Shearn, R.**, Koenders, A., Halse, S., Schön, I., & Martens, K. (2011), Evolution and Diversity of *Bennelongia* (Crustacea, Ostracoda) in Australia.

Grants, Honours & Awards

2012	Royal Society of Western Australia Student Medal , Top student - Physical and Biological Sciences - ECU	Australia
2012	Dean's List - Faculty of Computing Health and Science (ECU) , Top 1% of undergraduate students	Australia
2012	Western Australian Naturalists' Club Serventy Memorial Prize , For highest scoring Hons student - ECU	Australia
2012	Australian Postgraduate Award , PhD Scholarship	Australia
2011	Biorad Prize , For excellence in molecular biology	Australia
2011	Oceanica Prize , For excellence in marine science	Australia
2011 - 2015	Postgraduate Research Funding, School of Natural Sciences (ECU) , \$9000.00 AUD	Australia
2008 - ∞	Golden Key International Honour Society Member , Top 15 percent of ECU undergraduates	Earth

Short Courses

Introduction to Computer Science and Programming Using Python

Online Platform

MITx
2016

- Certified Pass, 99% Course Average

5th annual workshop on Computational Molecular Evolution

Hinxton, UK

WELLCOME TRUST GENOME CAMPUS EMBL-EBI
2013

- Certified Participant

Biological resources and biodiversity course of the Master BioSciences

Lyon, France

ÉCOLE NORMALE SUPÉRIEURE DE LYON
2013

- Certified Participant

Introduction to data and applied modelling in R

Australia

EDITH COWAN UNIVERSITY
2013

- Attendee

Community involvement & Service to the profession

Online Presence

Earth

EDUCATOR
2014 - Present

- YouTube:
<https://www.youtube.com/channel/UCDIs8xbb35UOCF51YZluRFA/videos>
- Blog:
<https://shearnryan.wordpress.com/>
- GitHub:
<https://github.com/rylanshearn>

Belgian Women in Science (BeWiSe)

Brussels, Belgium

ROLE MODEL
2014

- Assisting with development of educational toolkit for young people considering scientific studies and jobs.
- <http://www.bewise.be/>

Centre for Ecosystem Management

Joondalup, Australia

OPEN DAY SPEAKER
2012

- Seminar Title: Recent taxonomic and evolutionary research on *Bennelongia* (Ostracoda: Cyprididae).

Naturalists' Club of Western Australia

Western Australia

MEMBER
2012 - Present

- 2012 Presentation: Mussel shrimp, and the evolution of temporary pool microfauna in Australia.
- Practical education session: on the life cycle and ecology of aquatic invertebrates.
- <http://www.wanaturalists.org.au/>