

# Paris Veltsos

Jordan Hall, 1001 East Third Street  
 Bloomington, Indiana 47405-7005, USA  
[parisveltsos@gmail.com](mailto:parisveltsos@gmail.com)  
 +1 812 345 0500  
 ORCID: 0000-0002-8872-6281  
[www.parisveltsos.com/research](http://www.parisveltsos.com/research)

Postdoctoral Fellow  
 Department of Biology | Indiana University

## Academic Employment

- 2018 - Present **Postdoctoral Fellow - Indiana University**  
 Topic: QTL for sexual dimorphism, local adaptation, sex-specific selection and sex-chromosome evolution in the plant *Silene latifolia*  
 Supervisor: Lynda Delph
- 2014 - 2018 **SNSF Premier Assistant - University of Lausanne**  
 Topic: The evolution of homomorphic sex chromosomes in the common frog *Rana temporaria* and the annual plant *Mercurialis annua*  
 Supervisors: John Pannell, Nicolas Perrin
- 2011 - 2014 **NERC Postdoctoral Research Fellow - University of St Andrews**  
 Topic: Genomic response to experimental sexual selection in *Drosophila pseudoobscura*  
 Supervisors: Michael Ritchie, Rhonda Snook (Sheffield)
- 2008 - 2011 **NERC Postdoctoral Research Fellow - University of St Andrews**  
 Topic: QTL on pre-mating isolation in *Drosophila montana*  
 Supervisors: Michael Ritchie, Roger Butlin & Jon Slate (Sheffield), Anneli Hoikkala (Jyvaskyla)

## Education

- 2003 - 2008 **PhD - Queen Mary University of London**  
 Thesis title: The involvement of a sex chromosome fusion and rDNA diversity in the grasshopper *Podisma pedestris* hybrid zone  
 Supervisor: Richard Nichols
- 2000 - 2003 **BSc (Hons) Genetics - The University of Liverpool**  
 Final year project title: Isolation and characterisation of microsatellite loci from the Indonesian damselfish *Neoglyphidodon nigroris*  
 Grade awarded: 1st class (also first in the class).

## Publications (Total citations as of Dec 2019: 294, h-index: 9, i10-index: 8)

### Selected

23. **Veltsos P\***, **Ridout KE\***, Toups MA, González-Martínez S, Muyle A, Emery O, Rastas P, Hudzieczek V, Hobza R, Vyskot B, Marais GAB, Filatov DA, Pannell JR (2019) Early sex-chromosome evolution in the diploid dioecious plant *Mercurialis annua*. **Genetics** 212(3): 815-835 \***Shared co-authors**
22. **Veltsos P**, Fang Y, Cossins AR, Snook RR, Ritchie MG (2017) Mating system manipulation and the evolution of sex-biased gene expression in *Drosophila*. **Nature Communications** 8(1):2072
21. **Veltsos P**, Wicker-Thomas C, Butlin RK, Hoikkala A, Ritchie MG (2012) Sexual selection on song and cuticular hydrocarbons in two distinct populations of *Drosophila montana*. **Ecology and Evolution** 2: 80-94. DOI: 10.1002/ece3.75
20. **Veltsos P**, Keller I, Nichols RA (2008) The inexorable spread of a newly arisen Y chromosome. **PLoS Genetics** 4(5): e1000082

### Published

19. **Veltsos P\***, **Rodrigues N\***, Studer T, Ma W-J, Sermier R, Leunberger J, Perrin N (2020) Y-chromosome haplotypes of varying differentiation to the X are not associated with male fitness in common frogs. **Journal of Evolutionary Biology** 33(4): 401-409 \***Shared co-authors**
18. Li X\*, **Veltsos P\***, Cossard G, Gerchen J, Savova-Bianchi D, Huang Y, Pannell JR (2019) YY males of the dioecious plant *Mercurialis annua* are fully viable but produce largely infertile pollen. **New Phytologist**

244(3): 1394-1404 \*Shared co-authors

17. **Veltsos P**, Delph LF (2019) The X chromosome is necessary for ovule production in *Silene latifolia*. **PLoS ONE** 14(5): e0217578
16. **Veltsos P** (2018) Not all sex-biased genes are the same. **New Phytologist** 221(1): 10
15. **Veltsos P**, Cossard G, Beaudoin E, Beydon G, Savova-Bianchi D, Roux C, González-Martínez SC, Pannell JR (2018) The size and content of the sex-determining region of the Y chromosome in dioecious *Mercurialis annua*, a plant with homomorphic sex chromosomes. **Genes** 9(6): 277
14. Ma WJ, **Veltsos P**, Sermier R, Parker DJ, Perrin N. (2018) Evolution and developmental dynamics of sex-biased gene expression in the common frogs with proto-Y chromosomes. **Genome Biology** 19(1): 156
13. Ma WJ, **Veltsos P**, Touns MA, Rodrigues N, Sermier R, Jeffries DL, Perrin N (2018) Tissue specificity and dynamics of sex-biased gene expression in a common frog population with differentiated, yet homomorphic, sex chromosomes. **Genes** 9(6): 294
12. Rodrigues N, Studer T, Dufresnes C, Ma W, **Veltsos P**, Perrin N (2017) *Dmrt1* polymorphism and sex chromosome differentiation in *Rana temporaria*. **Molecular Ecology** 26(19): 4897-4905
11. Ala-Honkola O, Ritchie MG, **Veltsos P** (2016) Postmating-prezygotic isolation between two allopatric populations of *Drosophila montana*; fertilisation success differs under sperm competition. **Ecology and Evolution** 6(6): 1679-1691
10. **Veltsos P**, Gregson E, Morrissey B, Slate J, Hoikkala A, Butlin RK, Ritchie MG (2015) The genetic architecture of sexually selected traits in two natural populations of *Drosophila montana*. **Heredity** 115(6): 565-572 doi: 10.1038/hdy.2015.63
9. Touns M\*, **Veltsos P\***, Pannell JR (2015) Plant sex chromosomes: Lost genes with little compensation. **Current Biology** 25(10) R427-430 \*Shared co-authors
8. Tyukmaeva VI, **Veltsos P**, Slate J, Gregson E, Kauranen H, Kankare M, Ritchie MG, Butlin RK Hoikkala A (2015) Localisation of QTL for diapause and other photoperiodically regulated life-history traits important in adaptation to seasonally varying environments. **Molecular Ecology** 24: 2809-2819
7. Ala-Honkola O, **Veltsos P**, Anderson H, Ritchie M (2014). Copulation duration, but not paternity share, potentially mediates inbreeding avoidance in *Drosophila montana*. **Behavioral Ecology and Sociobiology** 68(12) 2013-2021
6. Bailey NW, **Veltsos P**, Tan YF, Millar AH, Ritchie MG, Simmons LW (2013) Development of tissue-specific transcriptomic resources in a non-model insect, the field cricket *Teleogryllus oceanicus*. **G3** 3(2): 225-230 DOI: 10.1534/g3.112.004341
5. **Veltsos P**, Ritchie MG (2011) Sympatric Speciation. In: **eLS** 2011, John Wiley & Sons, Ltd: Chichester <http://www.els.net/> DOI:10.1002/9780470015902.a0001749.pub2
4. **Veltsos P**, Keller I, Nichols RA (2009) Geographically localised bursts of ribosomal DNA mobility in the grasshopper *Podisma pedestris*. **Heredity** 103: 54-61
3. Keller I, **Veltsos P**, Nichols RA (2008) The frequency of rDNA variants within individuals provides evidence of population history and gene flow across a grasshopper hybrid zone. **Evolution** 64 (4): 833-844
2. Keller I, Chintauan-Marquier IC, **Veltsos P**, Nichols RA (2006) Ribosomal DNA in the grasshopper *Podisma pedestris*: Escape from concerted evolution. **Genetics** 174 (2): 863-874.
1. Watts PC, **Veltsos P**, Soffa BJ, Gill AB, Kemp SJ (2004) Polymorphic microsatellite loci in the black-and-gold chromis, *Neoglyphidodon nigroris* (Teleostei: Pomacentridae). **Molecular Ecology Notes** 4 (1): 93-95

## Invited Talks

- |         |  |
|---------|--|
| 02.2019 | <b>Departmental seminar</b> "Insights into sex chromosome evolution from genetic mapping", Amherst College, USA  |
| 09.2018 | <b>Departmental seminar</b> "Homomorphic sex chromosomes in plants and frogs", Indiana University, USA   |
| 11.2016 | <b>Workshop speaker</b> "Transcriptomic response to courtship in <i>D. pseudoobscura</i> ", The mechanism of the behaviour regulation and its research method in pest or insect workshop, Guangzhou, China |
| 06.2016 | <b>Departmental seminar</b> "Sexual selection and homomorphic sex chromosomes", Chinese Academy of Sciences, Xishuangbanna, China  |

- 06.2016 **Departmental seminar** "Investigation of a homomorphic Y chromosome", DEE Lausanne, Switzerland
- 05.2015 **Departmental seminar** "Detecting sexual selection in the field in frogs", DEE Lausanne, Switzerland
- 04.2014 **Workshop speaker** "My experience with RNAseq", RNAseq workshop, Centre for Genes and Genomics, Liverpool, UK
- 11.2006 **Genetics society prize winner talk** "The inevitable accession of XY systems", Promega Young Geneticist of the Year, Mammalian genetics and development, London, UK

## Conference Presentations

- 01.2020 **Talk** "Artificial selection on flower size disproportionately affects sex-biased genes in *Silene latifolia*", Popgroup 53, Leicester, UK
- 06.2019 **Talk** "Y-chromosome degeneration in plants the effect of 10 million years", Evolution, Providence, USA
- 06.2019 **Poster** "An updated genetic map in *Silene latifolia* shows sex-specific selection", Evolution, Providence, USA
- 08.2017 **Talk** Evolution of semi-independent homomorphic Y chromosomes in an annual plant species complex", ESEB, Groningen, Netherlands
- 01.2017 **Talk** "Comparison of gene expression between XX and XY males in the common frog", Popgroup, Cambridge, UK
- 06.2016 **Talk** "Investigation of a homomorphic Y chromosome", Evolution of sex determination workshop, la Sage, Switzerland
- 12.2015 **Talk** "Investigation of a homomorphic Y chromosome in an annual plant", Popgroup, Edinburgh, UK
- 08.2015 **Talk** "Sex-biased expression as a sexually antagonistic trait", ESEB, Lausanne, Switzerland
- 01.2014 **Talk** "Genomic response to experimental sexual selection", Popgroup, Bath, UK
- 09.2013 **Talk** "Genomic response to experimental sexual selection", Entomology conference, St Andrews, UK
- 08.2013 **Talk** "DNA sequence response to experimental sexual selection", ESEB, Lisbon, Portugal
- 12.2012 **Talk** "Are QTLs for behavioural variation within populations different to between populations?", Popgroup, Glasgow, UK
- 01.2012 **Poster** "Genetic maps of reproductively isolated populations of *Drosophila montana*", Popgroup, Nottingham, UK
- 08.2011 **Talk** "QTLs for courtship song and CHCs in natural populations of *Drosophila montana*", ESEB, Tuebingen, Germany
- 03.2011 **Talk** "Speciation through behaviour", SCAB symposium, St Andrews, UK
- 01.2011 **Talk** "Selection and population differentiation for song and cuticular hydrocarbons in *Drosophila montana*", PopGroup, Hull, UK
- 09.2010 **Talk** "Selection and population differentiation for song and cuticular hydrocarbons in *Drosophila montana*", New directions in sexual selection unifying behavioural and genomic approaches conference, Bath, UK
- 01.2010 **Talk** "Differential introgression of ribosomal DNA subgroups across a hybrid zone in the grasshopper *Podisma pedestris*", Popgroup, Liverpool, UK
- 08.2009 **Poster** "Distinct genetic determination of cuticular hydrocarbon profiles in divergent *D. montana* populations", ESEB, Turin, Italy
- 08.2009 **Talk** "Studying natural variation in reproductive isolation characters with QTLs", The role of behaviour in Speciation, St Andrews, UK
- 12.2007 **Talk** "Evidence of selection on rDNA in the *P. pedestris* hybrid zone", PopGroup, Warwick, UK
- 09.2006 **Talk** "Ribosomal DNA and reproductive isolation in the grasshopper *Podisma pedestris*", L.E.R.N conference, London, UK
- 07.2006 **Poster** "A tool to better understand early sex chromosome evolution", BBSRC evolutionary genetics summer school, Edinburgh, UK

- 02.2006 **Talk** "The effects of a sex chromosome fusion in a naturally occurring hybrid zone", Royal Entomological Society Postgraduate forum, London, UK
- 12.2005 **Talk** "Simulating a hybrid zone between two different sex chromosome system populations", PopGroup, Edinburgh, UK
- 09.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", L.E.R.N conference, London, UK
- 09.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", 11th meeting of PhD students in evolutionary biology, Bordeaux, France
- 08.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", ESEB, Krakow, Poland
- 02.2005 **Poster** "Grasshoppers, rDNA and FISH", Royal Entomological Society Postgraduate Symposium, London, UK
- 12.2005 **Poster** "Grasshoppers, rDNA and FISH", PopGroup, Reading, UK

## Workshops/Conferences

- 09.2019 **"Sex differences in the brain"**, Gill Centre for Biomolecular Science, Indiana University, USA
- 08.2018 **ESEB**, Montpellier, France
- 04.2018 **"De novo transcriptome assembly"**, Indiana University, USA
- 12.2011 **Association for the study of animal behaviour**, London, UK
- 04.2011 **"Transposable elements - Their functional and evolutionary biology"**, Genetics Society symposium, Edinburgh, UK
- 01.2010 **"Genetics and Genomics of speciation workshop"**, Peak District, UK
- 11.2009 **"Genetics and the causes of evolution 150 years of progress since Darwin"**, London, UK
- 04.2009 **"Theory of Speciation"**, Groningen, UK
- 09.2008 **"Challenges in speciation research"**, Sheffield, UK
- 05.2008 **"New frontiers in epigenetics"**, Genetics Society, London
- 02.2008 **"Genes & Behaviour"** Gordon Research Conference, Lucca (Barga), Italy
- 11.2006 **"Comparative genomics and diversity"**, London, UK
- 10.2006 **"Nature, nurture or neither - Genetics in the post genome era"**, London, UK
- 11.2005 **"Speciation Symposium"**, Natural History Museum, London, UK
- 11.2005 **"C.E.E Evolutionary inferences from phylogenetic trees"**, London, UK
- 03.2005 **"Life at the Boundaries the physics of survival and endurance"**, London, UK
- 11.2004 **"A walk from the wild side the genetics of domestication of livestock and crops"**, London, UK
- 11.2004 **"Evolution and Medicine"**, London, UK

## Teaching Experience

- 2014-2017 **Teaching assistant in 14 Botany practicals, 1st year Biology and Pharmacology students**, University of Lausanne, Switzerland
- 2015-2016 **Teaching assistant in 4 population genetics practicals, 1st year Biology students**, University of Lausanne, Switzerland
- 2015-2016 **Co-supervision of undergraduate student Nela Bacovska** (with Roman Hobza), Institute of Biophysics, Brno, Czech Republic
- 'Cytogenetics and BAC libraries of sex chromosomes in *Mercurialis*'.
- 2015 **Supervision of internship summer student Yi Huang** (8 weeks), University of Lausanne, Switzerland
- 'The viability and fertility of YY plants'
- 2010 **Guest lecturer**, 5 evolution lectures to 3rd year students, St Andrews, UK
- 'Coadapted gene complexes', 'Reproductive isolation', 'Hybrid zones', 'Evolution in islands'
- 2009 **Guest lecturer**, 3 speciation lectures to 2nd year students, St Andrews, UK
- 'Speciation definitions', 'Geographic modes of speciation', 'Speciation comparison between plants and animals'.
- 2009 **Supervisor of undergraduate student Holden Sheffield**
- "Identification of sex ratio distortion in *D. montana* lines".

- 2008-2009 **Lab technician co-supervisor Barbara Morrissey** (with Roger Butlin), University of Sheffield, UK
- 2008-2009 **Tutorial group lecturer**, 3rd year students, group of 8, St Andrews, UK
- 'Hardy Weinberg exercises', 'Favourite paper discussion', 'Essay writing', 'Poster preparation', 'Public speaking'.
- 2008 **Guest lecturer**, 4th year students, St Andrews, UK
- 'The evolution of sex chromosomes and sex determination'.
- 2003-2008 **Guest lecturer**, 4 lectures to 2nd and 3rd year students.
- The lecture included an introduction to sex chromosome evolution, my research on cytogenetics, and hybrid zone computer simulations.
- 2005 **Supervisor of undergraduate student Alem Gebreselassie**
- 'Fluorescent *in-situ* hybridisation and genomic *in-situ* hybridisation in *P. pedestris*'.
- 2004 **Supervisor of undergraduate student Hussna Jahan**
- 'Fluorescent *in-situ* hybridisation in *P. pedestris*'.
- 2003 **Supervisor of undergraduate student lab project**
- 'Is the *P. pedestris* hybrid zone position stable over time?'.
- 2003-2008 **Teaching assistant** to first and second year undergraduates, 3 days every 2 weeks during semester, Queen Mary University of London, UK
- Subjects covered: Meiosis, Chromosome genetics, Viruses, Evolutionary genetics snail field trip, PCR and BLAST, DNA extraction and analysis, Algae and cyanobacteria, Mitosis video, Basic techniques in biochemistry, Genetic drift, Phage lambda, Reproductive systems in land plants, Molluscs and arthropods, Biology summer school, Osmosis - plasmolysis, Introduction to microscopy, Essential microbiological techniques, Linkage analysis, Evolution - Natural History Museum visit, Cladistics, Evolution - Kew Gardens visit, Open day bioinformatics.

## Outreach

- 2018 **Creator of podcast** discussing papers and presenting them to the public through improvisational sketches (<http://thecatalyst.ch/category/projects/podcasts/science-beer-review/>).
- 12.2013 **STEM Ambassador**: Interviews with students on career choices in St Modans school in Stirling, UK.
- 03.2013 **STEM Ambassador**: Fife Open Day Science Festival demonstrator on ear and eye function.
- 01.2009 **Radio interview** by St Andrews radio on *Drosophila* courtship song.

## Academic Organization and Service

- 2016-2017 **Journal club** founding member (Lausanne)
- 08.2015 **Volunteer conference organiser** for ESEB in Lausanne (1,200 participants)
- 2009-2010 **Founding member of Post Graduate BioNetwork**, St Andrews, UK.  
This brought together students from 4 different buildings in weekly talks and social activities, and eventually run the 2-day post-graduate symposium.
- 2004-2006 **Biolunch weekly staff seminar organiser**, Queen Mary University of London)

## Bioinformatics experience

Github: <https://github.com/parisveltsos>

Programming: R, Perl, bash, vim

RNAseq analysis: Kallisto, EdgeR, Experimental design, Blast2GO, topGO

Genomics: RepeatMasker, BWA, Picard Tools, GATK, vcftools, Blast, FASTQC, BWA-MEM, samtools, augustus

QTL analysis: rqt1, Lep-Map 3, Cri-map, Asreml

Population genetics: Popoolation 2, adegenet

## Professional Membership

- 2004-present The Genetics Society

2004-present The European Society for Evolutionary Biology  
2010-2012 Association for the study of animal behaviour  
2004-2009 The Royal Entomological Society

## Academic Reviewing

- BMC Evolutionary Biology
- Biological Journal of the Linnean Society
- Current Biology
- Evolution
- Evolutionary Ecology
- Genetica
- Genome Biology and Evolution
- Heredity
- Insects
- Journal of Evolutionary Biology
- Journal of Heredity
- Journal of Zoology
- Molecular Biology and Evolution
- Molecular Ecology Resources
- Molecular Ecology
- Molecular Phylogenetics and Evolution
- New Phytologist
- PlosOne
- Proceedings of the Royal Society B
- Czech Science Foundation grants

## Website administration

My site (<http://www.parisveltsos.com/research/>) (included teaching material distribution)

Creation of Twitter bots to report on literature ([@sexChr\\_papers](#), [@silenepapers](#))

2009-2014 Ritchie lab website

2009-2014 Seminar shared calendars for departmental events in St Andrews

2009-2010 BioNetwork site

2004-2006 Biolunch site

## References

### Lynda Delph - Current postdoc supervisor

[ldelph@indiana.edu](mailto:ldelph@indiana.edu)

Department of Biology, Jordan Hall

1001 East Third Street

Indiana University

Bloomington, IN 47405

USA

+1 8128551831

### John Pannell - Previous postdoc supervisor

[John.Pannell@unil.ch](mailto:John.Pannell@unil.ch)

DEE University of Lausanne

Le Biophore, Unil Sorge

CH-1015

+41 216 92 41 70

### Richard Nichols - PhD supervisor

[r.a.nichols@qmul.ac.uk](mailto:r.a.nichols@qmul.ac.uk)

Queen Mary University of London

Mile End Road

London E1 4NS

UK

+44 20 7882 3362

### Mike Ritchie - Previous postdoc supervisor

[mgr@st-andrews.ac.uk](mailto:mgr@st-andrews.ac.uk)

Dyers Brae

University of St Andrews

St Andrews

Fife

KY16 9TH

UK

+44 1334 463495